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**Essays on Financial Reporting Quality, Earnings Management
and Corporate Disclosure**

Dissertation

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by

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ESSAYS ON FINANCIAL REPORTING QUALITY, EARNINGS
MANAGEMENT AND CORPORATE DISCLOSURE

To my compassionate wife, Griet, and our precious future

"Try not to become a man of success, but try rather to become a man of value"

Albert Einstein (1879-1955)

DOCTORAL JURY

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LIST OF ABBREVIATIONS

AIMR:	Association for Investment Management and Research
CA:	Current Accruals
DA:	Discretionary Accruals
DCA:	Discretionary Current Accruals
ETR:	Effective Tax Rate
EVCA:	European Venture Capital and Private Equity Association
GDP:	Gross Domestic Product
GPPE:	Gross Property, Plant and Equipment
IPO:	Initial Public Offering
M&A:	Mergers and Acquisitions
MBO:	Management Buy-Out
MTR:	Marginal Tax Rate
NPV:	Net Present Value
OCF:	Operating Cash Flow
PE:	Private Equity
SEO:	Seasoned Equity Offering
SME:	Small and Medium Enterprises
VC:	Venture Capital

SAMENVATTING (IN DUTCH)

De overvloed aan boekhoudkundige schandalen die de laatste jaren aan de oppervlakte kwamen, hebben het algemene vertrouwen in de aangeboden kwaliteit van de financiële verslaggeving van bedrijven ernstig ondermijnd. Verschillende marktpartijen liepen reeds substantiële economische verliezen op door al te blind te vertrouwen op de gerapporteerde cijfers, terwijl die achteraf al te vaak geen kwaliteitsvolle representatie van de realiteit bleken te geven. Dit maakt dat de kwaliteit van financiële verslaggeving van cruciaal belang is in de economische omgeving aangezien het ontbreken ervan kan leiden tot substantieel foutieve waardeverschuivingen tussen economische agenten. Het belang van kwaliteitsvolle financiële verslaggeving is de aandacht van de academische wereld niet ontgaan en resulteerde doorheen de jaren in een uitgebreid onderzoeksveld met betrekking tot dit domein. Tot op heden bevindt het empirisch onderzoek naar de kwaliteit van financiële verslaggeving in Continentaal Europa zich nog in een embryonale fase en is onderzoek bij private ondernemingen zo goed als onbestaand. Redenen hiervoor zijn voornamelijk terug te vinden in de relatieve onderontwikkeling van kapitaalmarkten in Continentaal Europa ten opzichte van het Verenigd Koninkrijk en Amerika, alsook het ontbreken van uitgebreide data op Europees niveau. De trend naar economische globalisatie en harmonisatie van de boekhoudstandaarden toont echter de relevantie van wereldwijd onderzoek hieromtrent aan en stimuleert onderzoekers om studies naar financiële verslaggevingkwaliteit ook in een Continentaal-Europese context te ondernemen.

Deze scriptie draagt bij tot de literatuur omtrent de kwaliteit van financiële rapportering bij private ondernemingen binnen de Continentaal-Europese context. Specifiek worden twee unieke onderzoekssettings geëxploreerd dewelke het toelaten om innoverend en gedetailleerd onderzoek te doen naar de determinanten van kwaliteit in de financiële verslaggeving bij private ondernemingen. Doordat de boekhoudkundige regulering in België niet gerelateerd is aan het al dan niet beursgenoteerd zijn maar echter voortvloeit uit de juridische entiteit, beschikken onderzoekers over een uitzonderlijke rijkheid van informatie om de kwaliteit van financiële verslaggeving bij zowel private als publieke Belgische ondernemingen te analyseren. Bestaand onderzoek dat werd uitgevoerd in een US context, is echter doorgaans beperkt tot het analyseren van kwaliteit van financiële verslaggeving bij beursgenoteerde ondernemingen door het ontbreken van data met betrekking tot private ondernemingen.

Alhoewel anekdotisch bewijs suggereert dat de determinanten en economische gevolgen van de kwaliteit van de financiële verslaggeving ook gelden voor private ondernemingen, is grondige empirische verificatie hiervan echter nog niet geboden. Bovendien is onduidelijk in welke mate private ondernemingen in hun winstrapportering fiscale motivaties afwegen ten opzichte van motivaties voortvloeiend uit financiële contracten uitstaand met derden.

De eerste twee studies uit deze scriptie focussen op een uniek databestand van 556 Belgische private ondernemingen die gefinancierd werden met extern aandelenkapitaal over de periode 1985-1999, verschaft door professionele private equity (hierna: PE) investeringsmaatschappijen. Onderzoek met betrekking tot dit soort ondernemingen laat toe om de kwaliteit van financiële rapportering te evalueren voor private ondernemingen die in sterke mate geconfronteerd worden met informatie-asymmetrieën en agency problemen.

De eerste studie uit deze scriptie onderzoekt de evolutie in kwaliteit van financiële verslaggeving bij ondernemingen die naar extern PE aandelenkapitaal solliciteren. Heel specifiek wordt in eerste instantie nagegaan of ondernemers, in een poging om het aantrekken van extern aandelenkapitaal te vergemakkelijken, tijdens de aanloophase naar de PE participatie de gerapporteerde cijfers in de jaarrekening trachten op te smukken door creatief aan winstbeheer te doen. Onderzoek bij US ondernemingen die extern aandelenkapitaal aantrekken via een publieke beursgang toont immers aan dat winsten vaak opportunistisch worden bijgekleurd tijdens deze aanloophase. Aangezien motieven en mogelijkheden bij beide soort kapitaaloperaties aanwezig zijn, stelt zich de vraag of private ondernemers die extern aandelenkapitaal van PE investeerders nastreven gelijkaardige acties ondernemen. In een tweede deel van het onderzoek staat de toenemende controle en verstrengde corporate governance regelgeving van de PE investeerder centraal. Er wordt nagegaan of de verregaande professionalisering en verstrengde corporate governance praktijken geïmplementeerd door de PE investeerder, effectief bijdragen tot de kwaliteit van de financiële verslaggeving van PE portefeuilleondernemingen. Dit soort onderzoek is belangrijk en kan de eerste empirische verificatie bieden omtrent de impact die PE investeerders hebben op de kwaliteit en discipline van de financiële verslaggeving bij hun portefeuilleondernemingen.

De bevindingen tonen aan dat ondernemers die PE kapitaal aantrekken, hun winsten opwaarts bijsturen in de jaren voor de PE investering ten opzichte van gelijkaardige ondernemingen die geen extern aandelenkapitaal ophalen. Dit wijst erop dat de bevindingen omtrent creatief winstbeheer bij ondernemingen die een beursintroductie doorvoeren ook terug te vinden zijn bij private kapitaaloperaties. In het tweede luik van het onderzoek naar de evolutie in financiële rapporteringkwaliteit worden verschillende attributen van kwaliteitsvolle rapportering bestudeerd. In totaliteit tonen een combinatie van testen aan dat na de effectieve investeringsdatum, de kwaliteit van de financiële verslaggeving bij PE gefinancierde ondernemingen aanzienlijk hoger is dan voor gelijkaardige ondernemingen zonder PE financiering. Dit onderzoek is één van de eerste wereldwijd om de effectieve bijdrage van PE investeerders aan te tonen in het professionalisme en de kwaliteit van de financiële verslaggeving van de portefeuilleondernemingen.

Naast de analyse van de meetbare kwaliteitsattributen van de gerapporteerde jaarrekeninginformatie wordt in een tweede studie bekeken hoe de hoeveelheid aangeboden financiële informatie naar externen toe evolueert rond de PE financiering. Deze 'disclosure' studie is een van de eerste studies dewelke de context het toelaat om de impact van een meetbare verandering in corporate governance en controlemechanismen (i.e. de PE financiering en de hierbij gepaard gaande overdracht van controle) op de aanbidding van financiële informatie vanuit de onderneming na te gaan. De mate van financiële disclosure is benaderd door een evaluatie van het soort jaarrekeningschema dat wordt aangeboden in functie van de wettelijke minimum vereisten. Een verkort schema impliceert een aanzienlijk lager kostenplaatje en gereduceerde voorbereidingstijd maar is enkel geoorloofd als de onderneming bepaalde criteria niet overschrijdt. Ondernemingen die een volledig jaarrekeningschema rapporteren indien slechts een verkort schema vereist is, worden bijgevolg geacht fundamentele baten te ondervinden ten opzichte van de kosten die hier tegenover staan.

De resultaten tonen aan dat vanaf één jaar voor de PE participatie, ondernemingen vrijwillig meer financiële informatie naar externen toe voorzien. Dit wijst erop dat ondernemingen de informatie-asymmetrie problemen inherent aan deze screening fase trachten op te lossen door op vrijwillige basis meer informatie te verschaffen naar externen toe. Nadat de onderneming in portefeuille steekt bij haar PE investeerder is de toename in financiële disclosure echter nog veel nadrukkelijker aanwezig en blijkt 30 à 35% van de portefeuilleondernemingen een

volledige jaarrekening te rapporteren alhoewel volgens de wet een verkort schema volstaat. Deze toename in disclosure wordt ook hier verklaard vanuit het professionalisme en de verstrengde corporate governance waarmee de PE investeerder de onderneming mede bestuurt. Zowel de studie met betrekking tot de attributen van de kwaliteit van financiële rapportering alsook de disclosure studie tonen allebei aan dat PE investeerders bijdragen tot de financiële rapporteringdiscipline van hun ondernemingen in portefeuille.

In een derde studie wordt de fiscale motivatie als drijfveer voor de financiële rapportering bestudeerd. Via de identificatie van alle dochterondernemingen van Belgische beursgenoteerde holdings wordt een dataset gecreëerd die heel specifieke groepsstructuren bevat en vergelijkbaar is met Japanse *keiretsu* of Koreaanse *chaebol* groepen. Deze groepen vormen in internationale context vaak het voorwerp van studies die de economische consequenties van groepsaffiliaties nagaan. In deze scriptie wordt nagegaan in welke mate groepsondernemingen kapitaliseren op hun groepsaffiliaties om hun gemiddelde individuele belastingsvoet te reduceren. Concreet worden in eerste instantie de verschillen in effectieve belastingsvoeten gemeten tussen groepsondernemingen versus onafhankelijke ondernemingen. Controlerend voor verschillende ondernemingsspecifieke factoren blijkt dat groepsondernemingen een significant lagere effectieve belastingslast dragen dan onafhankelijke ondernemingen. Dit resultaat is consistent met internationale bevindingen omtrent groepsondernemingen.

De studie gaat echter verder in de detectie van fiscaal gedreven winstbeheer binnen de groepsstructuren en analyseert de mate van winstbeheer, controlerend voor de individuele belastingsstatus en groepsaffiliatie. Binnen groepen bestaat er een duidelijke tendens om de winsten van filialen neerwaarts te masseren indien deze onderneming onderhevig is aan een positieve marginale belastingsvoet; ter compensatie op het groepsniveau blijken filialen die geen belastingen dienen te betalen op het realiseren van een extra eenheid inkomen hun winsten opwaarts bij te sturen. Bij onafhankelijke ondernemingen wordt geen dergelijk patroon vastgesteld wat suggereert dat groepsaffiliaties toelaten belastingsminimaliserend winsten te beheren. Aanvullend onderzoek suggereert bovendien dat intra-groep vorderingen en schulden belangrijke instrumenten zijn om de individuele winsten te sturen. Deze studie toont het belang aan van fiscale redenen in de bestaansredenen van groepen en heeft implicaties voor verschillende economische agenten.

De studies gebundeld in deze scriptie dragen bij tot de snel ontwikkelende literatuur omtrent de determinanten en karakteristieken van financiële rapportering bij private ondernemingen en vormen een contributie voor verschillende literaturen. De bevindingen tonen aan dat, ondanks gelijke wetgevende en boekhoudkundige beginselen, de kwaliteit van financiële rapportering verschilt binnen private ondernemingen en in sterke mate samenhangt met de aandeelhoudersstructuur en de daaruit voortvloeiende corporate governance instellingen. Deze resultaten hebben belangrijke implicaties voor verschillende partijen en poneren een vernieuwende kijk op de kenmerken en determinanten van financiële rapportering binnen private ondernemingen.

CHAPTER 1: INTRODUCTION

CHAPTER 1: INTRODUCTION

1.1 Introductory framework to the dissertation

With hindsight of the turmoil that corporate accounting scandals have caused in recent years, it would be an understatement to say that financial reporting quality and reliability has become a much debated issue. The abundance of accounting irregularities that surfaced in recent years have astonished market participants and eroded the overall confidence in the quality and credibility of financial statement figures. Moreover, the public attention and substantial press coverage on these large accounting scandals have stressed the vulnerability of currently applied financial reporting standards and practices, how well developed and professionalized these may even be.

At the end of the 1990s, when stock markets were booming and individual share prices skyrocketed each time firm managers were able to report earnings figures above analysts consensus forecasts, standard setters and regulators already warned to interpret the reported financial figures vigilantly. Arthur Levitt, former chairman of the Securities and Exchange Commission declared in a speech at New York University (1998) that “...*the motivation to meet Wall Street earnings expectations may be overriding common sense business practices...*” and that “...*wishful thinking may be winning the day over faithful representation.*”. This suspicion seemed legitimate and since then, various worldwide accounting scandals came to light which triggered a variety of financial and personal disasters, not only for investors but also for all other stakeholders of these firms. Accordingly, multiple actions have been taken with respect to various aspects of the well-functioning of financial reporting practices; not only at the standard setting and regulation level but also in a broader context through the creation of appropriate corporate governance guidelines and codes of conduct.

Altogether, what has happened over the past few years clearly shows that financial reporting practices are important fundamentals of the economic process and that various parties are affected by the way financial reporting is conducted. Therefore, financial reporting quality is prime to the well-functioning of the economy. This dissertation is rooted on these common themes that financial reporting matters and that financial reporting quality affects a variety of

market participants. Misrepresentations of the underlying economic performance of the firm can substantially affect resource allocation, making financial reporting quality of significant importance for all economic agents that have stakes in a firm's operations.¹

The vital role of financial reporting in the economy as a whole did not escape the attention of accounting academe and has resulted in extensive research on this issue, both theoretically and empirically. A large research area focuses on positive accounting theorems by examining managers' financial reporting decisions in various contexts. Typically, manager's choices are found to vary across different types of market imperfections like agency costs, information asymmetries and externalities influencing third parties (Fields et al. (2001)). Studies which scrutinize variations in the attributes of earnings quality and relate this to managerial preferences and choices, fall within this field of research. A related research area concentrates on the role and implementation of corporate disclosure decisions in the financial reporting process (Healy and Palepu (2001)). Also in this line of research, agency problems and information asymmetries are identified as key drivers of disclosure decisions.

Despite some recent exceptions, only few empirical research has been executed on Continental European firm data and practically none scrutinizes unlisted firms.² One can think of many reasons why research on European data has been lagging behind. The relatively less well-developed capital markets in Continental Europe, the rather short history of the unified European Union and the fact that no comprehensive data on the European level were accessible until recently are only two of them. Nevertheless, with the trend for economic globalization and accounting harmonization, the academic community gets convinced that financial reporting quality has worldwide importance and that it is also of crucial interest for unlisted firms. Moreover, studying attributes of earnings quality for unlisted firms has the advantage that earnings quality can be evaluated in the absence of public capital market pressures. This offers the opportunity to investigate other drivers of managers' financial reporting decisions like financial contracting and taxes more unequivocally. The few

¹ The degree of misrepresentation which affects a firm's financial reporting quality needs to be seen as a theoretical continuum ranging from very low to very high. Although the economic environment is only affected by a limited number of extreme misrepresentations of economic performance (e.g. who did not hear about accounting scandals and fraud examples like Enron in the US, Parmalat in Italy and Lernout and Hauspie in Belgium?), these cases often get the most press coverage and public attention. However, academic accounting research on financial reporting quality goes beyond these specific cases and examines determinants, use and consequences of various discretionary elements in GAAP in relation to the observed reliability and value-relevance of financial reporting.

² Some recent exceptions include Ball and Shivakumar (2005) who analyze differences in earnings conservatism among UK public and private firms and Burgstahler et al. (2004), Coppens and Peek (2005) and Sercu et al. (2002) who examine the earnings management phenomenon for Continental European (private) firms.

academic studies which have been executed on the characteristics and determinants of financial reporting in unlisted Continental European firms, however, leave several issues unanswered. Therefore, the intention of this dissertation is to provide detailed insight in the financial reporting quality of unlisted firms in a Continental European context.

To achieve this goal, the studies bundled in this thesis apply two unique datasets of Belgian unlisted firms which allow to study financial reporting in an innovative setting and at a very detailed level. The principal features of the Belgian institutional setting provide a unique study perspective since accounting regulation in Belgium, as in the entire European Union, is not based on having publicly traded securities but depends on a firm's legal form. Hence, both publicly listed and private firms are legally obliged to report financial statements annually and comply with the same accounting standards and tax laws. The developing literature on financial reporting quality in private firms finds a lower degree of earnings quality in private firms than for public firms (e.g. Ball and Shivakumar (2005), Burgstahler et al. (2004)). This finding is generally addressed by the notion that private firms resolve information asymmetries by an insider access model where financial statements are less useful for contracting issues with externals and are more likely to be driven by taxation, dividend and other policies. In this dissertation, I surpass these general findings on financial reporting quality of private firms by examining financial reporting concerns on a micro-level, i.e. for specific firms within one country, and provide refined evidence on the association between financial reporting quality, ownership structures and corporate governance issues.

The first two papers of this dissertation focus on a specific research setting where financial reporting of unlisted firms does matter to convey information to externals, namely the private equity context. The private equity setting is highly interesting since it is characterized by information asymmetries and agency problems which inherently affect the demand for high quality financial reporting. Moreover, although the need for research on the financial reporting discipline of private equity backed firms is acknowledged worldwide (e.g. Hand (2005)), it is still a largely unexplored area in academic research. The first paper consists of two main enquiry issues. The first issue is the examination of whether entrepreneurs apply earnings management in the private equity process to increase their chances in attracting external capital. This research is embedded in the earnings management research surrounding public equity capital offerings as initiated by Teoh et al. (1998a and 1998b) and Rangan

(1998) and conjectures analogous incentives and opportunities for private firms to manage earnings in the private equity process as are typically found in the IPO process.

In the empirical financial accounting literature, assessments of earnings quality are frequently addressed by earnings management studies in which researchers try to determine the extent of discretionary management interventions in a firm's reported earnings and relate this to a clearly identified and isolated incentive (e.g. Burgstahler and Dichev (1997), Dechow et al. (1995 and 2003), DeFond and Jiambalvo (1994), Erickson and Wang (1999), Jones (1991), Teoh et al. (1998a and 1998b)).³ Most empirical earnings management research builds upon the model introduced by Jones (1991) to isolate the discretionary component of the reported earnings figure. Although this model received a lot of critique and researchers are aware of its shortcomings, it is still the most dominant research technique in the examination of earnings management. Since its introduction, several modifications and additional checks have been applied to the model to control for various elements (e.g. Dechow et al. (1995), Dechow et al. (2003), Kothari et al. (2005)). The overall consensus is that after the necessary controlling for several factors, discretionary accruals models perform relatively well in providing large sample earnings management evidence. In this study, Jones-type discretionary accruals models are applied to examine earnings management evidence.

Second, this study additionally addresses the unresolved matter whether private equity investors positively affect the financial reporting discipline for their portfolio firms, resulting in a higher earnings quality. Although it has been documented (e.g. Gompers (1995), Kaplan and Strömberg (2004)) that private equity investors not only monitor their portfolio firms closely but also substantially improve the corporate governance systems employed and inherently stimulate a firm's professionalization, it remains an unresolved issue to what extent financial reporting quality is affected by this. Therefore, the second inquiry specifically focuses on the earnings quality of private equity backed firms once private equity investors are on board of their portfolio firms. Earnings quality in the context of more financial reporting discipline is addressed by studying the timeliness of loss reporting as in Ball and Shivakumar (2005). Timely loss incorporation is related to the earnings conservatism

³ This list is far from complete and many of the empirical earnings management studies are not mentioned here. For a more complete overview on the state of the art, interested readers are suggested to read Healy and Wahlen (1999) and McNichols (2000) who summarize the earnings management literature vastly until the end of the 1990s. Additionally, the overview studies of Fields et al. (2001) and Shackelford and Shevlin (2001) provide additional interesting information on earnings management studies, although the latter primarily focuses on earnings management studies from a tax perspective.

principle as described by Basu (1997) and affects corporate governance and contracting issues. The governance effect results from the disciplining behavior of timely loss reporting on the agency costs associated with managers' decisions. The entrepreneurial-private equity relation is characterized by substantial agency problems, making this research technique a very relevant one.

The second paper employs the private equity framework to consider corporate disclosure and changes in a firm's disclosure behavior. Next to earnings quality, corporate disclosure studies are another important branch of the financial reporting literature. Both empirical and analytical papers on voluntary disclosure of information have identified various incentives and economic consequences of increased disclosure. In a principal-agent setting where agents are likely to have superior information above principals, disclosure is believed to mitigate information asymmetries between differently informed parties (Healy and Palepu (2001), Lang and Lundholm (1996), Verrecchia (1983)). Disclosure behavior is affected by a variety of economic factors that are related to contracting, regulation and market conditions and their ability to eliminate information asymmetries. Therefore, research on corporate disclosure typically scrutinizes variation in these factors and their associated economic outcomes (Healy and Palepu (2001)). Corporate disclosure research is a good supplement to earnings quality research in a combined attempt to capture the extent of corporate financial reporting quality.

Accounting academe identify many unresolved fundamental questions regarding disclosure decisions and raise concern on the disregard of researchers of treating disclosure independently from a firm's changing environment or economics (Healy and Palepu (2001)). The study presented here acknowledges the non-random character of disclosure decisions and examines changes in corporate disclosure policy as a response to information asymmetries and agency problems inherent to the private equity process. Related studies are only available for publicly listed firms and detect increases in disclosure behavior prior to public equity offerings (Lang and Lundholm (2000), Marquardt and Wiedman (1998)). However, no evidence is provided yet on the disclosure tendency for unlisted firms that are faced with high information asymmetries. Moreover, in line with the arguments in the first study, there is no prior study available which scrutinizes the consequences of intensified corporate governance systems and professionalization of private equity investors on their portfolio firms disclosure behavior. These elements all indicate the necessity and relevance of a study on corporate disclosure behavior in the private equity process. Therefore, the current study focuses on

disclosure in the private equity process as a whole and additionally analyzes changes in corporate disclosure behavior in the pre- and post- private equity investment period separately. Whereas disclosure is primarily believed to solve information asymmetries in the pre-investment period, it is likely to result from agency problem solving in the post-investment period.

The third paper moves away from the private equity context and focuses on the relation between tax-incentives and earnings management decisions. In a Continental European setting, c.q. Belgium, where tax accounting and financial accounting are strongly linked, evidence suggests that firms manage earnings for tax reasons (Burgstahler et al. (2004), Coppens and Peek (2005), Vander Bauwhede et al. (2002)). However, the difficulty in distinguishing among multiple incentives to manage earnings for various objectives generally leads to mixed study results (Fields et al. (2001)). Firms typically are not able to focus on tax minimization in isolation since financial reporting also affects contracts with banks and other creditors (Scholes et al. (2002)). To overcome this problem, this study concentrates on firms that are operating in a business group, where financial reporting costs of booking a lower income are generally less important than for independent firms. Group firms have less incentives to report high income levels as financial contracting is often provided through the group affiliations and is unaffected by financial reporting measures. As a result, group firms can concentrate their financial reporting on tax-minimization and capitalize on their business affiliations to manage earnings at the subsidiary firm-level and, in addition, to shift income from profitable to loss making firm entities. Analyzing tax-induced earnings management and income shifting for business groups provides a very powerful setting and is able to produce more distinct results than previous studies on tax-minimization in the Continental European context. Hence, this paper not only provides new insights in the importance of tax incentives in an institutional context where tax and financial reporting are closely linked but in addition sheds light on the tax rationale for the existence of business groups.

The overall contribution of this dissertation is its ability to provide valuable insight in the financial reporting process of unlisted firms that are subject to very specific external pressures and incentives. Moreover, by examining two highly specific and unique research settings, this dissertation moves beyond the developing cluster of financial reporting quality studies on European unlisted firms which treat this issue rather broadly. Altogether, the combination of research that has been broached here is a contribution to several literatures. The first two

papers expand the growing literature on earnings characteristics of private equity backed companies and additionally build on advances in the corporate governance literature on the role of private equity investors as monitors in the professionalization process of a firm. As such, the results presented here do not only complement the accounting literature but also the entrepreneurial finance literature which often treats the corporate reporting environment as exogenous. The third paper adds to both the empirical accounting and tax research by providing new insights in firms' earnings management actions when financial and tax accounting are closely linked. In addition, this study complements the corporate finance literature on business groups.

In the remainder of this introduction, I provide a brief summary of the three papers included in this dissertation. This summary provides the reader with some basic information on the sample characteristics and applied research techniques and additionally sketches the main findings of the studies. Chapter 2 contains the full study results of the paper entitled "*Private equity and earnings quality*". In Chapter 3, the study on "*Private equity investments and disclosure policy*" is presented and Chapter 4 presents the study on "*Business groups, taxes and earnings management*". The final chapter concludes and discusses the general results of the dissertation. In addition, it presents some important implications of the main findings and suggests avenues for future research.

1.2 Overview of studies

1.2.1 Study 1: Private Equity and Earnings Quality

General framework

In their continuous search for capital, firms generally have a variety of financing alternatives at their disposal. However, if traditional financing alternatives like bank and equivalent debt types are insufficient to finance a firm's business process, firms typically have to revert to alternatives like private equity (*hereafter*: PE) financing (Berger and Udell (1998), Rajan (1992)). Private equity is a very specific type of equity capital which is provided by professional investment institutions and is generally raised to strengthen a firm's balance

sheet, to make acquisitions or to finance a management buy-out or buy-in (EVCA, 2004). Due to its highly specific characteristics and the typical contractual relations that arise between company's insiders and the investor-outsiders, the private equity setting has been frequently used to study various economic problems in a framework where information asymmetries, agency problems or moral hazard problems are playing (see e.g. Kaplan and Strömberg (2002)).

One of the facets which has been surprisingly neglected until now is the use financial statement information and the importance of the financial reporting quality in a PE setting. Nevertheless, both anecdotal and embryonic academic evidence suggests that the use and reliance upon financial statement information is particularly important in a PE setting (e.g. Fried and Hisrich (1994), Hand (2005), Kaplan and Strömberg (2004)). The studies in this dissertation acknowledge the importance of financial statement information in the identification and execution of PE deals and study attributes of unlisted firms' earnings quality in the years surrounding the PE investment deals.

More specifically, the first part of this study examines whether PE backed firms applied upward earnings management to report a better earnings figure in their PE process. Academic evidence suggests that similar incentives and opportunities exist during the IPO process, where firms raise equity capital on the public capital markets (Teoh et al. (1998a and 1998b), Rangan (1998)). Although there is no general agreement on whether investors are able to uncover and to fully see through this kind of earnings management, evidence suggests that investors are fixated on high earnings levels and reporting upward managed earnings levels is beneficial in the search for equity. In a second part of the study, I examine whether the well-documented intensified governance structure and increased professionalization of PE investors' presence results in a higher earnings quality, both in terms of low earnings management and timely loss reporting.

Sample and method of analysis

The sample contains an unique dataset of financial and non-financial data of Belgian PE backed firms, covering the period 1985-1999. The firms were identified through the consultation of PE investment reports, financial databases and press releases. Financial statements of the sample firms come from the 2000 and earlier versions of the Belfirst® DVD, a financial database supplied by Bureau Van Dijk. Financial and holding firms are

removed due to their highly specific nature. The final sample contains 556 PE backed firms, being approximately 40% of all PE investments during the observed period. Next to these firms, a sample of matched non-PE backed firms is selected to provide a basis from comparison.

The first part of the analysis focuses on the difference in earnings management between PE backed and matched control firms in a time frame of two years before until 2 years after the PE investment year. Earnings management is measured by running standard modified Jones (1995) sector-peer regression models and by subtracting the estimated, i.e. expected current accruals component from the actual recorded current accruals component. Mean (median) discretionary accruals are examined and *t*-tests (Mann-Whitney U tests) are provided to test the significance of these differences in means (medians) over all observed years around the PE financing event. Further, yearly OLS regression models are employed to examine the accruals behavior in a multivariate way. To control for potential endogeneity problems that might result from selection bias inherent in receiving PE, a Heckman two-step selection model is employed.

In a second part of the study, the focus is on the impact of PE governance on portfolio firm's earning quality and uses financial statements information of post-investment years for all sample and control firms. Earnings quality is operationalized through the timeliness of loss reporting and the relation between accruals and timely loss reporting, relative to a firm's operating cash flow sign. Timeliness of loss reporting is estimated through a piece-wise linear OLS regression of current year earnings changes on last year's earnings changes, and by making the model dependent on prior period earnings decreases and being PE backed. The model is an extension of Ball and Shivakumar (2005) and allows to disentangle differentials in loss recognition for PE backed versus non-PE backed firms. The inherent relation between timeliness of loss reporting and accruals follows from Dechow et al. (1998) and Ball and Shivakumar (2005) and tests the accruals-cash flow relation, also differentiating for negative cash flows and PE status.

Findings

The results of this study are twofold. First, earnings management results show that PE backed firms manage earnings upward, i.e. have significantly positive discretionary accruals, from two years before the PE financing until the financing year. Even one year after the initial PE

financing, accruals remain positive but reverse to lower levels afterwards. Non-PE backed firms have unexpected accruals that are insignificantly different from zero across all observation years. Multivariate results obtained through yearly OLS regressions and 2-stage Heckman corrected regressions provide evidence consistent with this pattern. The endogeneity problem inherently present in our sample even biases the results downward and shows the need to control for potential confounding selection problems. These findings suggest that entrepreneurs manage earnings upward, either opportunistically or over-confidently, to report higher earnings levels in the period leading up to receiving PE. Furthermore, PE governance is found to be associated with restrained earnings management in the post-PE financing period.

Second, in the post-PE financing period, PE backed firms have a higher timeliness of loss reporting than non-PE backed firms. Further, accruals-based tests of earnings conservatism indicate that this timeliness of loss reporting is not a result of random errors in accruals or unobserved earnings management actions. PE backed firms have a significantly less negative correlation between total accruals and operating cash flow if the latter is negative, suggesting a higher quality use of accounting accruals. All findings point towards higher earnings quality once professional PE investors are on board and intensified governance structures have been implemented. The current findings document that PE investor presence and the intrinsic professionalization associated with this event, improves the quality of reported earnings of their portfolio firms. Our results are sensitive to a number of sensitivity analyses and additional tests.

1.2.2 Study 2: Private Equity Investments and Disclosure Policy

General framework

This study analyzes corporate disclosure policies of PE backed firms in the run-up and the period following the PE investment. The motivation to conduct this disclosure study for PE backed firms is rooted in the inherent characteristics of the PE setting where information asymmetries arise and agency problems are resolved through intensified monitoring and governance. Until now, PE research is inconclusive on how quality, apart from intrinsic company characteristics, is signaled towards PE investors. We argue that a high-quality firm

discloses more information to the outside world when raising PE finance and derive this argument from basic economic theory. The information asymmetry problem that typically arises between a better-informed entrepreneur and outside PE investors gives rise to the lemons problem, which causes good and bad projects to be valued at an average level. In an attempt to resolve this problem, the best entrepreneurs signal their superior quality and increased financial disclosure might be a valuable instrument to do so.

The study additionally delves into a firm's disclosure policy in reaction to the intensified governance and professionalization originating from the PE investor presence. As a response to the agency problems encountered in PE contracts, PE investors become intensively involved in their portfolio firms' day-to-day activities and contract a substantial number of controls contingent upon observed performance measures. This strong PE investor involvement results in a substantial change in governance and positively affects the professionalism the firm is operating with. We argue that this intensified governance and professionalization is noticeable in the way financial reporting is conducted and, as such, is manifested in a higher disclosure level of financial information to outsiders.

Sample and method of analysis

The firms included in this study are retrieved from the same dataset as used in the first paper. The disclosure proxy is a self-constructed dichotomous variable. Belgian GAAP allows firms of which the intrinsic company fundamentals do not exceed certain limits to report abbreviated financial statements. These abbreviated financial statements contain substantially less information than complete financial statements and require only concise preparation time and reporting skills. Firms that disclose complete financial statements although they do not exceed the minima requirements are labeled as high disclosure firms and zero otherwise. Given the higher preparation and publication costs together with the loss of competitive information on its financial situation, a firm will only disclose a complete financial statement if the associated benefits of this high disclosure offset the costs. Firms that are legally obliged to report a complete financial statement are removed from the sample since these are not the focus of the analysis. Additionally, PE backed firms are classified as government PE backed versus non-government PE backed to highlight the differences in disclosure behavior of portfolio firms across different investor types.

Results are analyzed and discussed through a graphical plot and frequency tables of yearly evolutions of PE backed and control firms' disclosure behavior around the PE financing year. Additionally, Chi² test statistics are applied to test for statistical differences in proportional composition of sub-samples, while *t* tests (Mann Whitney U tests) are employed to test for significance of differences in mean (median) of control variables. Multivariate results examining the relation between the high disclosure proxy, proximity to PE financing and control variables are estimated through various random effects panel logit regression model specifications. Endogeneity problems, potentially biasing the reported results are controlled for by running yearly logit regressions and two-stage treatment logit regressions in the pre-financing and the financing year. Wald Chi square statistics show uncorrelated error terms of the logit and two-stage treatment logit and provide comfort that selection bias, if present, is not driving the results.

Findings

Univariate and multivariate findings indicate that PE backed firms switch to a higher disclosure policy one year before they receive PE. This increase in disclosure prior to the PE investment is interpreted as evidence that entrepreneurs attempt to reduce information asymmetries by increased financial disclosure. The findings further show that the commitment to higher disclosure is further intensified from the PE investment date onwards and suggest that the well-documented monitoring and professionalization impact of PE investors affects the financial reporting behavior of their portfolio firms. Analyses further show that investor type differences has no overall impact on their portfolio firm's disclosure policy ex post. The earlier shift towards high financial disclosure which is found for government PE backed firms is explained by their potentially longer search-for-equity period. However, the rather low number of available observations for the non-government PE backed sample in the pre-PE financing years calls for additional evidence from other studies to corroborate on this issue.

1.2.3 Study 3: Business Groups, Taxes and Earnings Management

General framework

This studies delves into the question whether earnings management in a Continental European context is highly motivated by tax incentives. Anecdotal evidence and related research suggests that in institutional contexts where tax and financial accounting are closely linked, firms have incentives to trim down reported income as this results in a lower tax burden (Burgstahler et al. (2004), Coppens and Peek (2005), Sercu et al. (2002)). The tax-minimizing earnings management question is studied for a sample of group affiliated firms, motivated by the notion that for these firms tax benefits of reporting low income levels are thought to outweigh the financial reporting benefits of reporting high income levels. Since it has been documented that group firms can rely extensively on their business affiliations to finance (part of) their business operations (e.g. Deloof (1998), Khanna and Palepu (2000)), these firms provide an excellent research setting to analyze corporate earnings management behavior in the absence of conflicting financial reporting incentives.

While the bulk of previously performed studies focus on multi-jurisdictional income shifting of large multinational firms to study corporate tax planning activities, this study is one of the first to identify firm-level tax-avoiding earnings management in business groups operating in one jurisdiction. Moreover, this paper contributes to the literature since it is one of the first which explicitly studies the often-argued tax rationale for business groups in a Continental European setting.

Sample and method of analysis

To conduct this study, a unique dataset of group firms is retrieved in the Belgian context. In Belgium, as in many other Continental European countries, financial and industrial business groups represent a significant proportion of the active economy. These business groups are often controlled by a dominant industry-diversified entity that controls a large number of affiliated firms through often complex and pyramidal constructs. The existence of these large business groups provide the opportunity to study the often-argued but underinvestigated tax rationale for the existence of holding firms.

To study this issue, all Belgian firms affiliated with a listed Belgian holding firm were identified. Additionally, a sample of purely independent firms were selected as a basis for comparison. The concept of tax-minimizing earnings management is approached through a variety of elements. In a first part of the paper, the difference in effective tax burdens between group firms and independent firms is analyzed through univariate and multivariate regression analyses. Additionally, tax-minimizing earnings management itself is examined by relating a firm's marginal tax rate status to the incidence and direction of accruals management. A final section of the study examines the importance of intra-group transactions on group firm's flexibilities to allocate income across group firms relative to their individual marginal tax rate status. Next to OLS regressions, panel data analyses are employed and provide comparable results. Results are robust to a variety of additional robustness checks.

Findings

Group firms face a significantly lower effective tax burden than independent firms, a finding which persists through univariate and multivariate analyses. Moreover, group firms display a significantly less positive association between pre-tax reported income levels and effective tax burdens than independent firms. Both findings suggest that group firms are able to capitalize on their business affiliations in their endeavor to minimize taxes. Further, it is shown that group firms with positive marginal tax rates manage their earnings downward to avoid paying high taxes while tax-exempt group firms exploit their zero marginal tax margin and apply significantly less downward earnings management than independent firms. These findings suggest that the direction and extent of accruals management within group firms is highly driven by a group firm's marginal tax rate status. Finally, analyses on a sub-sample of group firms only show that changes in firms' intra-group transactions are negatively related to pre-tax income for firms facing positive marginal tax rates, while being positively related for firms with a zero marginal tax rate. This result suggests that intra-group transactions contribute to the tax-avoiding reporting behavior of group member firms.

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CHAPTER 2:

PRIVATE EQUITY AND EARNINGS QUALITY

Private Equity and Earnings Quality *

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Abstract

This paper examines the relation between private equity (PE) investors' involvement and their portfolio firms' earnings quality. Quality is operationalized using two earnings attributes: mainstream earnings management measures combined with timely loss reporting as in Ball and Shivakumar (2005). For a unique sample of Belgian unlisted firms, we find that firms manage earnings upward prior to receiving PE financing and we attribute this behavior to entrepreneurial attempts to attract PE attention. Post-PE financing date, PE involvement and governance induces higher earnings quality both in terms of low earnings management levels and timely loss reporting. Results are robust for various measures and controls including the endogeneity issue. These results confirm the importance of financial statement information and its quality in private markets and further enhance the understanding of PE investors' governance implications for portfolio firms' earnings quality.

JEL classification: M41, G32, M13

Keywords : Earnings quality, earnings management, earnings conservatism, accruals, private equity, unlisted firms.

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2.1 Introduction

A substantial theoretical and empirical literature has explored how private equity (PE) investors screen, select, finance and monitor their portfolio companies (e.g. Gompers, 1995; Kaplan and Strömberg, 2002 and 2004; Lerner, 1995). Most of these studies focus on the dynamics of the relationship and the contractual arrangements between PE investors and entrepreneurs. Until recently, the exact role of financial reporting in this PE context, and more specifically the way intensified scrutiny and monitoring by PE investors affect the financial reporting quality of their portfolio firms, is an issue which received only marginal attention in the extant literature. However, anecdotal and academic evidence shows that this issue is important, both in the pre-investment screening and in the post-investment monitoring period. In the current study, we investigate the effect of intensified PE investor scrutiny and governance on two important attributes of earnings quality, namely earnings management and earnings conservatism by studying a unique sample of unlisted Belgian PE backed firms and a sample of matched non-PE backed firms.⁴ The principal features of the Belgian setting provide a unique study perspective. Both listed and unlisted firms are legally obliged to report financial statements on a yearly basis and to comply with the same accounting standards and tax laws, providing a unique richness of financial statement information for unlisted firms. We exploit these characteristics to study the earnings quality of unlisted companies dependent on the incidence of being PE backed.

A study like this is interesting for several reasons. Studies on earnings quality of unlisted firms are appealing in their own right, due to the predominance of private companies in the economy and the fact that only marginal attention has been paid to these kind of firms in empirical studies.⁵ Moreover, the PE setting is particularly interesting since it is characterized by information asymmetries and agency problems which inherently affect the demand for high quality financial reporting. The use of financial statement information in a PE context is particularly important, even for unlisted firms. Hand (2005) shows that financial statements of

⁴ We specifically prefer to use the term private equity (PE) in this study context rather than venture capital. This is mainly driven by the specific characteristics of our sample firms. According to the European Venture Capital and Private Equity Association (EVCA) definition, 'venture capital' is defined as a "*subset of private equity and refers to equity investments made for the launch, early development, or expansion of a business.*" PE is broader in meaning and is also used to define external equity capital that is raised to strengthen a company's balance sheet, to make acquisitions or to finance a management buy-out or buy-in (EVCA Glossary). Since a considerable number of firm observations refer to later stage deals and hence do not satisfy the definition of venture capital *sensu stricto*, we use the term PE to label all our equity financed deals.

⁵ Recent studies acknowledge this shortage of attention and explicitly study earnings characteristics of unlisted firms in a regulatory setting where financial reporting requirements of unlisted firms are similar to those of listed firms (e.g. Ball and Shivakumar, 2004; Hand, 2005). More than 90 percent of all registered European companies are unlisted and they constitute about 99 percent of all private non-agricultural entities. Figures for Belgium are similar to European averages.

unlisted firms are value relevant in the PE market and are similar to those of post-IPO public equity markets, and that their value relevance increases when firms mature. The current study acknowledges the importance of financial statement information in a PE context and studies the relation between the quality of reported earnings and the governance of a PE investor.

Prior research has shown that financial statement information is important in both the pre-investment screening and post-investment monitoring process. This raises questions as (i) whether entrepreneurs actively manage reported earnings upward to attract PE investors and (ii) whether PE investors' governance affects the ex post financial reporting quality of their companies in portfolio. In this paper, we address these issues by studying pre- and post-investment financial reporting characteristics of PE investors' portfolio companies and focus on two important earnings attributes, namely earnings management and earnings conservatism.

We use earnings management tests to investigate the extent of discretion that is used by entrepreneurs and managers in financial reporting. Consistent with prior research, we define earnings management as the intentional modification of a firm's performance by insiders to either mislead stakeholders or to influence contract terms. Traditional earnings management studies typically examine earnings behavior around specific corporate events like initial public offerings (IPOs), seasoned equity offerings (SEOs), (convertible) debt issues and debt covenant violations (for an extended literature overview, we refer to Healy and Wahlen, 1999). Around these events, corporate incentives to manage earnings are likely to be high since in all above-mentioned situations, a company is better off when reporting higher earnings figures. IPOs and SEOs will have more chance of succeeding, debt issues can be done at more favorable rates and debt covenant violations can be avoided if companies are able to meet or beat a priori financial benchmarks. The empirical literature provides evidence of intensified earnings management around the analyzed events (e.g. Chaney and Lewis, 1998; DeFond and Jambalvo, 1994; Perry and Williams, 1994; Teoh et al., 1998a and 1998b).

In the case of PE financing, one can question whether entrepreneurs act in a similar way and manage earnings upward when applying for PE. Given that PE investors perform a first rough screening to discover potential investment prospects and that good financial performance reflected in reported accounting numbers is appraised positively by PE investors, we claim that entrepreneurs try to show a better image of their company, hereby trying to increase their chances of getting money. Our empirical results are consistent with this prediction. Earnings

management levels (measured by discretionary accruals) are highest in the pre-investment and the investment year and decrease afterwards, consistent with the postulation that (i) entrepreneurs actively manage earnings upward to attract PE attention and (ii) PE investors' governance results in lower earnings management levels post financing date. This result is apparent in univariate tests and cross-sectional regression analyses which determine the magnitude of discretionary current accruals, being a quantifiable measure for earnings management. Results are robust with respect to a number of controls for company specific characteristics and the inevitable endogeneity issue present in the sample.

We additionally test the governance impact of PE investors on an additional earnings quality attribute, namely earnings conservatism. We study earnings conservatism as in Ball and Shivakumar (2005) to test for the timeliness of loss reporting and relate this to the quality of reported earnings of PE portfolio firms. Since it has been shown that PE investors require that bad news is disclosed promptly and that reported financial statements are important instruments in the ex post evaluation of portfolio performance (Falconer et al., 1995; Kaplan and Strömberg, 2004), we expect a higher timeliness of loss reporting for PE backed firms compared to similar non-PE backed firms.

Our results show that timely loss reporting is significantly more prevalent in PE backed firms compared to matched non-PE backed firms. We interpret this finding as evidence that the higher legitimate demand for timely information and the professionalized environment created by PE investors induces a higher financial reporting quality. This result is confirmed in both a test for transitory time-series components in income and an additional test-specification as applied in Ball and Shivakumar (2005) based on the relation between accruals and cash flow from operations. It is robust with respect to alternative income definitions, controls for size and industry and data winsorizing adjustments.

This study contributes to several literatures. It expands the growing literature on earnings characteristics of PE backed companies (Jain and Kini, 1995; Hand, 2005; Hochberg, 2003; Teoh et al, 1998a and 1998b). These studies, however, are limited to periods surrounding the IPO largely because of data unavailability before going public.⁶ This unique dataset of unlisted firms, receiving PE financing from external parties, allows to study to what extent financial reporting is affected by intensified PE scrutiny and governance. This study also

⁶ Hand (2005), however, selects a sample of US biotech companies and therefore claims that most financial statements span the entire life of the firm since these firms typically go public very shortly after their establishment. The specific financial reporting requirements of Belgian unlisted firms, however, allow us not to limit ourselves to a specific category of firms. Instead we can study earnings characteristics of a more heterogeneous group of PE backed firms, irrespective of their likelihood of going public.

builds on recent advances in the corporate governance literature on the role of PE investors as monitors in the professionalization process of a firm (Gompers, 1995; Hellmann and Puri, 2002). We show that the increased governance stemming from PE investors endogenously determines financial reporting quality post PE financing date. This provides evidence that PE investors play a positive role in an additional and previously unexplored component of the professionalization of their portfolio firms, namely the quality of their financial reporting. Third, this paper also contributes to the entrepreneurial finance literature which often treats the corporate financial reporting exogenously.

The remainder of this paper goes as follows. In section 2.2, hypotheses are developed. In section 2.3, we describe our sample and the specific Belgian institutional context and provide descriptive statistics on the sample used. In Section 2.4, we report regression results and the findings of various robustness diagnostics on both earnings attributes. Section 2.5 concludes and discusses the study.

2.2 Hypotheses

Applying for and receiving outside equity financing is an important corporate event that has impact beyond receiving additional financial resources. It affects an individual firm's corporate governance and professionalization status (e.g. Hellmann and Puri, 2002). Before the deal, firms applying for PE financing have to advertise themselves to catch the interest of potential investors. Once PE investors decide to invest in the company, its governance system typically is reshaped to reduce information-asymmetry and moral hazard problems (Gompers, 1995; Lerner, 1995; Kaplan and Strömberg, 2002). In the following section, we argue how both pre-investment screening and post-investment governance may affect a company's financial reporting process, alternatively with respect to our two studied earnings quality attributes, namely earnings management and earnings conservatism.

2.2.1 PE investments and earnings management

2.2.1.1 Pre-investment

One major concern of firms which seek PE financing is that they need extensive exposure towards potential investors. Typically, their search for capital is facilitated when they are able

to show excellent market opportunities, technological advantages or when a qualified and dedicated entrepreneurial team is managing the company (e.g. Wright and Robbie, 1998; Kaplan and Strömberg, 2004).

However, next to these often-quoted success factors in attracting PE, financial figures are also key elements in the screening process of investment opportunities. Several authors show that PE investors rank financial performance and accounting information in general on the same level as entrepreneurial characteristics and market opportunities in their screening and selection process (Kaplan and Strömberg, 2004; MacMillan et al., 1987; Wright and Robbie, 1998). Further, Fried and Hisrich (1994) report that the majority of their sample of US-based PE investors conduct an in-depth study of company financials before taking on an investment deal. For European level data, Manigart et al. (2000) find that the importance of financial statements in PE screening and monitoring differs geographically and that investors with a financial or banking background heavily emphasize accounting and financial statement information.

One might expect that entrepreneurs which are in a search for PE use all means available to showcase their company. Given that financial statements are an important determinant on which PE investors focus their attention, we postulate that entrepreneurs manage earnings levels upward prior to the deal. This reasoning is substantiated by academic and anecdotal evidence showing that a typical PE screening process is executed in multiple stages. In a first stage, PE investors screen investment opportunities rather roughly, focusing only on important benchmarks such as market opportunities, business potential and financial performance to date (Fried and Hisrich, 1994; Hall and Hofer, 1993; Kaplan and Strömberg, 2004). This first-round screening usually is executed by junior team members and generally takes only a limited amount of time (Fried and Hisrich, 1994; Hall and Hofer, 1993). Only a small number of business proposals pass through the first screening stage and detailed due diligence is further performed on a limited number of potential deals in a second evaluation round.⁷ Hence, it is highly important for PE seeking companies to survive the first screening test and to be considered for a more intensive due diligence, which eventually opens up the door for receiving PE funding.

As a result, entrepreneurs who are well aware of the way PE financiers screen their investment opportunities are expected to manage earnings upward since good performance

⁷ Anecdotal evidence as well as academic studies show that out of 100 proposals that are submitted to a PE investor per year, on average only ten pass the initial screening round and from these ten, only one or two actually receive PE financing (Berlin, 1998).

increases their deal chances. Given the consensus in the literature on past financial performance as an imperative element in the PE decision making process, we conjecture that PE seeking companies will use all means available to present themselves as favorably as possible to the outside world.

One potential counterargument for this conjectured relationship is that it has empirically been shown that PE investors are professional parties who cannot be fooled easily. Wright and Robbie (1998) find that PE investors have complicated screening and evaluation techniques to underpin their investment decision. Moreover, since their selection is based on consecutive screening rounds and a thorough due diligence process is executed to uncover both opportunities and potential threats of the investment, one might wonder whether this earnings management behavior would not be uncovered easily. Even if earnings management attempts would not be unraveled prior to the deal, the close monitoring after the investment suggests they can be detected in a later stage anyway.

However, in line with the managerial response argument of Shivakumar (2000) in an SEO context, firms applying for PE might manage earnings in the period leading up to the event since this is the only behavior that results in a Nash equilibrium. If issuers (*here*: PE seeking firms) cannot credibly signal the absence of earnings management in their reported figures, PE investors are likely to treat all firms equal as having overstated their earnings and consequently discount their price. In an anticipation of such behavior, entrepreneurs then mimic all other firms and logically overstate their current earnings to an average anticipated level by the PE investors. Since PE investors anticipate this behavior, no-one is fooled in the end and earnings management is a natural outcome of the prisoner's dilemma game between PE seeking entrepreneurs and potential PE investors. Based on these arguments, our first hypothesis states that entrepreneurs – either in an attempt to attract PE attention or as a result of a prisoner's dilemma game between entrepreneurs and investors – manage their earnings upward in the period leading up to the PE event:

H1: *“PE financed companies manage earnings upward prior to the PE investment”*

2.2.1.2

Post-investment

Once the PE deal is completed, the entrepreneur is no longer the exclusive owner of the firm. The specific investor/investee relationship results in a principal-agent situation, as described

in Jensen and Meckling (1976). An entrepreneur's private benefits are not always perfectly aligned with outside investors' returns (Gompers, 1995; Kaplan and Strömberg, 2002). Entrepreneurs could invest in projects with high personal benefits but low monetary returns for investors, with the only goal to maximize personal wealth (Gompers, 1995).

As a result, PE investors typically include monitoring devices in the investment contract. Arrangements between entrepreneurs and PE investors are typically negotiated in financial contracts describing control rights, cash flow rights and vesting rights (Kaplan and Strömberg, 2002). Further, PE investors monitor their portfolio firms by periodic evaluations of the company's status, incorporating options to abandon subsequent financing and putting VC representatives in the board of directors (Lerner, 1995; Wright and Robbie, 1998). Other examples are periodical check-ups of the day-to-day activities and prerequisite periodical financial reports (e.g. Gompers, 1995). Furthermore, PE investors play a substantial role in shaping the management team, developing a business plan, providing essential assistance in take-over matters or in designing the executive compensation (Kaplan and Strömberg, 2002; Sapienza et al., 1996). Further, Kaplan and Strömberg (2004) show that PE investors are often involved in installing internal accounting systems.

These findings indicate that PE investors install an intensified governance system by extensive monitoring actions, resulting in tight post-investment relationships between investors and entrepreneurs. We argue that this enhanced monitoring and close involvement of the PE investor with the company itself reduces post-investment financial reporting flexibility and, as such, reduces earnings management flexibilities. Consequently, the hypothesized upward earnings management pattern prior to the investment date is expected to fade out after the investment date, resulting in our second hypothesis:

H2: *“Post-PE investment, intensified PE governance generates low earnings management levels in their portfolio firms.”*

However, the intrinsic characteristics of the earnings management actions could partly drive the suggested relation of our second hypothesis. Evidence of lower earnings management levels post PE financing cannot be directly attributed to the intensified governance of PE investors, since earnings management typically reverses over time. Dechow (1994), amongst others, shows that artificially inflated earnings are most commonly realized by aggressively

recognizing unrealized accounting accruals.⁸ Upward managed accruals in one period automatically lead to a downward pressure on accruals in following periods.

Given that hypothesis 1 predicts upward earnings management prior to the investment deal and that this is typically done by opportunistically overestimating accruals, the natural behavior of accruals automatically is expected to result in a backlash after the objective has been met (i.e. after the actual investment date). Consequently, if hypothesis 1 finds confirmation, the natural behavior of accruals itself partly explains declining accruals in the post-investment years. Hence, focusing solely on the earnings management behavior pre- and post-investment date in isolation does not provide a uniform indication of a PE investor's monitoring impact on the company's financial reporting process.

Hence, we acknowledge the intertemporal dependence of our earnings management measure and explore an additional attribute of earnings quality, namely earnings conservatism measured through timely loss recognition. Combining the earnings management measure with the earnings conservatism framework allows us to study PE investors' governance impact on their portfolio companies' financial reporting quality more unambiguously.

2.2.2 PE investments and earnings conservatism

As documented in the previous section, PE investors put in place a more intense governance and monitoring system and this, in turn, is expected to influence a company's financial reporting discipline. In addition to earnings management, which accounting academe typically relate negatively to the reliability of a company's financial statements and is generally seen as an important attribute of earnings quality, we explore a second component of earnings quality, namely earnings conservatism.

We define earnings conservatism as timely loss reporting, consistent with Ball and Shivakumar (2005). Timely loss recognition is an important attribute of earnings quality since it increases the efficiency of financial statements' use, especially with respect to governance issues. Contrary to a deferred recognition method, timely recognition of accounting losses incorporates losses on an accrued basis, e.g. as inventory write-downs, restructuring costs or asset impairments. Timely loss recognition results in more conservative financial statements

⁸ National GAAP generally allow managers to report accounting earnings in an accrual accounting based system. This accounting system is more flexible than the traditional cash accounting reporting and allows managers to shift revenues and expenses into the period they are actually incurred. Hence, accrual accounting systems have the advantage of better matching revenues and expenses, hereby allowing entrepreneurs to generate more value relevant accounting figures than cash accounting would do (Ball and Brown, 1968; Dechow, 1994).

and hence is more value relevant since it contains more *ad hoc* information content. A conditional form of earnings conservatism (i.e. timely loss recognition) more quickly triggers violations of existing debt covenants and contractual agreements agreed upon with the PE investors. As a result, corporate governance is affected since timely loss recognition gives managers less flexibility to undertake negative NPV projects and hereby aligns the interests of both the entrepreneur and the other stakeholders, among which also PE investors (Ball and Shivakumar, 2005).

Examinations of timely loss recognition as an earnings attribute are highly relevant in this PE setting since intensified PE investors' governance will trigger harsher financial reporting discipline, specifically since Kaplan and Strömberg (2002) have shown that PE investors make control rights contingent upon financial as well as non-financial measures. Consequently, it is likely that PE investors monitor their portfolio company's financial reporting process and apply quality standards to it, in order to receive high quality accounting information. E.g., the entrepreneurial literature suggest that receiving a timely indication of difficulties is an imperative element for PE investors, mainly because the distribution of control rights between entrepreneurs and PE investors is often made contingent upon financial risk. Moreover, Falconer et al. (1995) show that PE investors are primarily concerned with receiving reliable and timely financial information from their portfolio firms. This suggests that PE investors inherently affect the financial reporting discipline by requiring their portfolio firms to report losses timely to identify difficulties instantly, rather than leaving them unidentified or carrying them forward to future periods.

Further, although the observed companies are private in nature and previous research in a UK setting has found that earnings conservatism for private firms is typically lower compared to public companies (Ball and Shivakumar, 2005), we expect that PE investors' governance influences the extent of earnings conservatism positively. A higher earnings conservatism propensity makes financial statements more useful for contracting, monitoring and valuation purposes and is expected to be more prevalent for PE backed compared to independently run firms. Additional evidence for this reasoning is that PE investors generally want to exit after a number of years, hereby realizing a substantial surplus value on their investment (e.g. Gompers, 1995; Kaplan and Strömberg, 2002). Therefore, PE investors typically prepare their portfolio firms for a future sale which is made easier by presenting professional and reliable financial statements. Hence, the increased demand for high quality financial reporting by

external parties after the PE financing date suggests a more predisposed conservatism in earnings reporting.

From the arguments mentioned above, we conjecture that PE backed firms are likely to have more conservative earnings compared to non-PE backed firms. This higher conservatism tendency in financial reporting then is a direct result of the higher legitimate demand for financial reporting quality by the PE investors. This leads to our third hypothesis:

H3: *“PE backed companies report accounting losses more timely (i.e. report more conservative earnings) compared to non-PE backed companies”*

In the next section, we describe the specific characteristics of our research setting, namely the Belgian PE context. We discuss the selection of the sample and report descriptive statistics.

2.3 The Belgian PE Industry and Sample Description

2.3.1 The Belgian PE industry

Before the 1980s, Europe as a whole and the US were two different continents as regards PE. The absence of a supportive entrepreneurial spirit combined with poor exit alternatives offered by the stock market at that time, resulted in a substantial underdevelopment of the European PE industry compared to the US. The European situation was also observed in Belgium, where PE only gained importance after the 1980s. Evidence of this juvenile character of the Belgian PE industry is clearly illustrated when comparing the importance of the industry with respect to the size of the economy. During our observation period 1985-1999, average Belgian PE investments totaled 0.06% of GDP. US figures are substantially higher, reaching values of 3 to 4 times that size during the same period (Manigart et al., 2002). Consistent with worldwide tendencies, the Belgian PE industry grew sharply, especially during the late 1990s' bubble years to a maximum of 0.22% of GDP in 2000. In the years 2001 and 2002, again following worldwide tendencies, total PE investments nearly halved to 0.12% of GDP.

The vast majority (58%) of PE during the observation period went to expansion investments. Seed and start-up investments, replacement capital and buy-outs accounted for respectively 26%, 9% and 7%. The most popular investment sector was high-tech related (47%), which is

according to EVCA definitions: “*communications, computer and other electronics related, biotech and medical or health related*”. Industrial-related and consumer-related sectors accounted for respectively 17% and 10% of all investments during that period.

With respect to investor type, the Belgian PE industry is further characterized by a large number of small independent PE companies and a few large PE investment companies (EVCA, various years). It is noteworthy that more than half of total investments made during our observation period come from government-related PE investors. Both the Flemish GIMV (*Gewestelijke InvesteringsMaatschappij voor Vlaanderen*) and the Walloon SRIW (*Société Régionale d'Investissement de Wallonie*) account for a substantial part of these government-related PE investments. Independent and captive investors both account for a mere 25% of total investments.

2.3.2 Description of the sample

The current study uses a unique dataset of financial and non-financial data of Belgian PE backed firms, covering the period 1985-1999. PE deals were retrieved from financial databases, PE investment reports and press releases. Financial statement figures come from the records of the National Bank of Belgium, retrieved in the September 2000 and earlier versions of Belfirst®, a financial database supplied by Bureau Van Dijk. Financial statements of each firm are selected from maximally two years before the PE investment date until at least two years after the PE investment.⁹ We excluded financial and holding companies from the sample because of the highly specific nature of these firms. This resulted in a final sample of 556 PE backed companies, covering nearly 40% of all PE investments in Belgium during the observed period.

This dataset has a unique feature which makes it particularly attractive to study the earnings quality of unlisted firms in that all Belgian companies (both listed and non-listed) are obliged to file their financial statement annually at the National Bank of Belgium. This creates an excellent opportunity to study earnings quality characteristics of unlisted companies and to build a longitudinal database containing detailed financial statement data of privately-held, unlisted companies receiving PE for the first time in their existence. This richness of financial statement data for unlisted firms provides us with a unique dataset which cannot be retrieved

⁹ If the firm was not operational yet two years before the PE participation year, the firm-year observations were only included from the first time the firm reported its financial statement. This has consequences for the size of the analyzed sample for both the earnings management and earnings conservatism tests which are explained in further detail later on.

in a typical research context – like the US – where this kind of financial statement information is unavailable for unlisted companies. Although other studies find that unlisted companies experience a lower demand for high quality financial accounting compared to listed companies (e.g. Ball and Shivakumar, 2005), we clearly expect the financial reporting behavior of these firms to be impacted by the decision to attract PE and the increased governance coming into place after the PE investment.

To provide a basis for comparison, we selected a comparable sample of companies that did not receive PE. Following Megginson and Weiss (1991), Jain and Kini (1995) and Lerner (1999), each PE backed firm is matched with a non-PE backed equivalent firm on three criteria in the year before investment: *activity* (measured by a four-digit sector code), *size* (proxied by total assets) , and *age* (number of years between foundation and PE financing date).¹⁰ For firms receiving PE in the start-up year, the matching year was set equal to the first year in which the financial statement data became available, typically being the investment year. Descriptive statistics of both samples are given in Table 2.1.

Insert Table 2.1 here

Table 2.1, Panel A shows that the mean (median) PE backed firm's age at the PE event is 8.7 (4.0) years while it is 9.9 (4.0) years for the matched non-PE backed firms. 37% of the firms receive PE financing within 2 years after their founding date, 18% are between 2 and 5 years while 45% are more than 5 years old.¹¹

Panel B provides descriptive statistics on basic accounting figures for both the PE backed and non-PE backed firms, pooled over all post-investment observation years. Mean (median) total

¹⁰ More precisely, the matching of a PE sample firm with an equivalent non-PE backed firm was performed as follows. First, we retrieved all firms that have their core activities in the same sector of a PE backed firm. As in Teoh et al. (1998a), we start with a four-digit sector (i.e. NACE) code. Out of the retrieved sector peers, we select those firms with total assets not exceeding a 10% total assets range of the PE backed firm. If no match was retrieved in this 10% total assets range, we allowed a 25% (or, if necessary a 50%) difference in total assets. If there was still no match available after tolerating a 50% difference in total assets, we selected all three-digit sector peers and applied the same selection criteria with respect to total assets. This logically yields more sector peers but is at the expense of sector specificity. If necessary, we searched among two-digit sector peers. About 95% of all matched firms are retrieved in at least a three-digit sector specification. From the retrieved sector-peer firms with total assets in the predefined asset range, we selected a firm with its age closest to that of the PE backed firm as its matched firm. This selection procedure yields matched non-PE backed firms that are operative in the same sector, have a relatively similar size and are in comparable life stages. While most studies (e.g. Megginson and Weiss (1991), Jain and Kini (1995)) only match on sector-activity and size, we additionally incorporate age as a matching requirement. This approach is sensible given that a relatively large number of firms receives PE in an early stage of their life cycle and that this a potentially determining factor of a firm's financial reporting professionalism.

¹¹ According to the European Venture Capital and Private Equity Association (EVCA) definitions, this means that about 55% of the sample firm can be considered as having received pure venture capital, since these are younger than five years at the time of time of PE financing while the rest received PE in a more broader sense.

assets of PE backed firms are EUR 9,010,546 (2,662,302) and vary between EUR 20,997 and EUR 203,094,281 showing the substantial variation in size of PE backed companies. Moreover, mean (median) total assets of non-PE backed firms are significantly lower and equal EUR 4,978,984 (1,592,765), varying between EUR 28,943 and EUR 98,512,986. PE backed firms realize a mean (median) growth in assets of 5.9% (5.8%), a figure which is significantly higher than for the non-PE backed matches (2.6%, respectively 3.8%). With respect to leverage, we also note significant differences. PE backed firms have both higher mean and median leverage compared to non-PE backed firms: 68.7% (70.9%) versus 65.4% (68.9%).¹²

Panel C reports detailed information on the industry classification of sample companies on a two-digit level. Result are consistent with anecdotal evidence that PE investors typically invest in a limited number of industries. In accordance with the investment sector profile of the entire Belgian PE industry, computer services (16.9%), wholesale distribution (12.8%) and metal manufacturing (7.7%) are the most important sectors in our sample.

2.4 Research Methods and Empirical Results

2.4.1 Earnings Management Tests

To study a firm's earnings management behavior in relation to receiving PE financing, we initially apply mainstream earning management detection techniques and study unexpected discretionary accruals as an indicator for earnings management.¹³ Discretionary accruals are a commonly used proxy for measuring the degree of earnings management in a company's financial figures. Companies use accruals as accounting adjustments to distinguish reported

¹² These significantly higher figures for all three reported accounting variables do not come as a surprise and are in line with international findings. Although we matched sample and control firms around the PE financing year on a number of company features, their specific characteristics (being PE backed or not) determines their growth profile and business characteristics after the PE financing considerably. Descriptive statistics (*not reported*) show that in the year of matching, total assets are comparable in both event and matched sample. The significantly higher values for the pooled observations are hence completely explained by the difference in growth profiles and business characteristics between both samples. Matching on growth or performance in addition to the three above-mentioned criteria might seem appropriate but was not applied here for several reasons. The most obvious reason is related to our sample characteristics: given that a large part of our sample PE firms does not have prior information and received PE in their start-up year, the performance matching should apply on the year of PE investment itself or the post-PE investment years. Given that the PE firms' growth and performance is potentially affected by the PE capital injection, we prefer to undertake tests that account for this potential sample bias instead of additionally matching on this criteria and hereby taking the risk that we cancel out some of the specific PE related information.

¹³ In unreported analyses, we additionally studied earnings distributions as in Burgstahler and Dichev (1997) and Degeorge, Patel and Zeckhauser (1999). Results of these analyses (*available upon request*) lead to similar conclusions as the accruals regressions reported below. However, for reasons of conciseness, we do not to report the findings of these tests and instead focus on elaborated accruals results.

earnings from cash flow from operations. Part of these accruals are inherent to the business activities of the company and part come from discretionary decisions of managers (e.g. Jones, 1991; Dechow, 1994; Ball and Shivakumar, 2005). Accrual-based research tries to unveil this discretionary component of accruals and considers it as an indicator for earnings management.

We apply a cross-sectional regression model as in Teoh et al. (1998a and 1998b), which is an extension of the most widely used earnings management model, the Jones (1991) model. Although the original Jones model studies short term as well as long term discretionary accruals, we focus on short-term working capital accruals since managers have greater flexibility and control over current versus long term accruals (Teoh et al. 1998a and 1998b). More specifically, current accruals are computed as follows:

$$\begin{aligned} \text{Current accruals} = & \Delta (\text{Inventory} + \text{Accounts receivable} + \text{Other Current Assets}) \\ & - \Delta (\text{Accounts payable} + \text{Tax Payable} + \text{Other current liabilities}) \end{aligned} \quad (1)$$

Since accruals by itself are not necessarily evidence of earnings management, these current accruals have to be modeled into (1) non-discretionary accruals, which inherently result from the natural changes in business activities and (2) discretionary accruals, which are made at the discretion of management. Expected non-discretionary current accruals are estimated by running cross-sectional regressions of current accruals on the change in gross margin of all available sector peers.¹⁴

We require that each company under investigation is present in the sample for a sufficiently long time period to unambiguously track the earnings management evolution around the PE event. We therefore retrieve all firms that report financial statements from two years before the PE financing year and follow these firms until two years after this date. Since we require all firm-observations to be present in the sample from two years before the PE investment, the number of useful observations for these accruals estimations reduces substantially to 166 PE backed and 160 non-PE backed companies. To avoid survivorship bias problems, we do not

¹⁴ This estimation is a variant of the normally used model which uses sales growth as an explanatory factor instead of growth in gross margin. The reason for this is that Belgian firms are allowed to report abbreviated financial statements when they comply with the following requirements: A company should (1) employ less than 100 employees on average per year registered or (2) not meet two or more of the following criteria: (i) annual turnover > 6,250,000 euro, (ii) balance sheet total > 3,125,000 euro and (iii) average number of employees > 50. One major difference between abbreviated and complete financial statements is that sales levels only have to be disclosed in complete financial statements. In abbreviated formats, only reporting of a gross margin figure is obligatory and sales disclosure is optional. Gross margin equals (Operating Income [financial statement item 70/74] – Raw Materials and Consumables [item 60] – Services and Other Goods [item 61]). Given that the majority of our sample firms report an abbreviated statement, we use gross margin figures to avoid ample missing data in our estimations (for further information on this issue we refer to Appendix 2.A).

require all firms to be present in the sample over the entire observation period. The number of available observations reduces to 133 PE backed companies and 127 non-PE backed companies in later years, because some firms went bankrupt during the observation years while others merged or were acquired. For reasons of completeness, we report descriptive statistics of these sub samples of PE backed and matched firms in Table 2.2, Panel A. Further, we calculate the level of discretionary current accruals for each individual firm and for all specific firm-years. Consistent with most studies, we selected sector peers in the cross-sectional accruals estimations on a two-digit sector level. We used a one-digit sector specification if less than 7 individual peer companies were available for the industry-specific regression. Furthermore, data of a sector peer member are only included in the accruals estimation when this firm (1) did not receive PE financing or (2) did receive PE financing but only for those years outside the five year time scope around the PE investment.

 Insert Table 2.2 here

Table 2.2, Panel B presents median discretionary current accruals levels for both the PE backed and the matched sample in a time frame of two years before until two years after the participation. Median discretionary current accruals levels of PE backed companies are significantly positive around the investment year. From one year before until one year after the investment, we find a significantly higher earnings management level in the PE backed sample compared to the non-PE backed sample. Discretionary accruals grow from +2.13% of lagged total assets two years before the investment date to a maximum value of +4.05% in the participation year, before dropping off to an insignificant average of +1.15% two years after the investment. The non-PE backed sample has lower median discretionary accruals values overall, being insignificantly different from zero for all observation years. Further, the difference in median discretionary current accruals between both samples is highly significant in the years around the PE financing. We winsorized the top and bottom 1% of discretionary current accruals observations to minimize the impact of outliers and our results remain unchanged.

Consistent with the findings of Teoh et al. (1998a and 1998b) and Rangan (1998) in a public equity offering context, entrepreneurs massage earnings figures upward prior to the PE event and discretionary current accruals are used to achieve this goal. This finding is consistent with our first hypothesis. Discretionary current accruals become significantly positive one year

before the PE investment, reach a maximum in the event year and remain significantly positive until one year after the event. The finding that discretionary current accruals decrease towards a level that is insignificantly different from zero in year $t+2$ provides evidence in line with our second hypothesis. This lower level of earnings management two years after the investment year can be interpreted as a result of the PE investors' governance ex post.¹⁵

To further corroborate our findings, we perform a number of additional analyses which take into account that other factors might make some firms more likely to manage earnings than others. To disentangle the importance of this potential omitted variable bias, we model discretionary current accruals as a function of some additional control variables:

$$DCA_i = \alpha_i + \beta_{PE} PE_i + \beta_{size} \ln(size)_i + \beta_{age} \ln(age)_i + \beta_{IBX} \Delta(IBX)_i + \beta_{LEV} Leverage_i + \Theta IND_i + \varepsilon_i \quad (2)$$

DCA equals the level of discretionary current accruals for the firm in a specific observation year. PE is a dummy variable taking the value of 1 when a firm is PE backed and 0 otherwise to edge out the effect of receiving PE financing. $\ln(size)$ is the natural logarithm of total assets while $\ln(age)$ is the natural logarithm of the firm's age. We do not predict a specific sign for the coefficients of the size and age variable. On the one hand, larger firms may have more complex financial accounting techniques available to manage earnings. On the other hand, larger firms are typically more politically visible than smaller firms, suggesting a lower proportion of earnings management (e.g. Watts and Zimmerman, 1990). Equally, older firms may on the one hand have more expertise to exploit flexibility in accounting mechanisms but, conversely, have a longer track record making it less easy to disguise accounting irregularities. $\Delta(IBX)$ measures change in income before extraordinary items from the previous fiscal year to this year, scaled by the lagged total assets. This variable is included to control for any misspecification resulting from potential correlation between discretionary accruals and operating performance (Dechow et al., 1995). $Leverage$ equals Total Liabilities on Total Equity. The higher a firm's leverage, the less own resources a firm uses to finance its business activities and the higher the level of outstanding liabilities. Consistent with the debt covenant hypothesis, we expect a positive relation between the leverage ratio and the extent of earnings management (DeFond and Jambalvo, 1994). Finally, IND controls for industry fixed

¹⁵ However, in line with the intrinsic mean reverting behavior of accruals, this finding might also be explained as a reversal effect. To provide more comforting evidence on the earnings quality improvement in the post-PE financing period, we additionally perform tests on timely loss recognition and the accruals - cash flow relation in Section 2.4.2 and further.

effects (one-digit sector codes). We run yearly control regressions over all observation years from $(t-2)$ to $(t+2)$.

As an additional robustness check, we further control for potential endogeneity problems that might result from the selection bias inherent in receiving PE. Even if PE has no effect on discretionary accruals, the PE coefficient might still be significant if PE backed firms are exactly those that are more likely to have high discretionary accruals a priori. As a result, the coefficients in model (2) might be biased in the years where the selection takes place, unless we adjust for this endogeneity problem. We therefore extend model (2) with a selection model based on the Heckman two-step regression (1979) in the years where the matching of sample firms and control firm was done, i.e. in the pre-financing or the financing year. In these two-step regressions, we first model the decision to attract PE as a function of a firm's intrinsic growth, investment profile, solvency, profitability and liquidity position and take this selection effect into account in the original yearly control regressions. More technical details on the Heckman selection model and the choice of variables in the equation are provided in Appendix 2.B.

Insert Table 2.3 here

Table 2.3 reports coefficients and t -statistics of yearly OLS regressions for all observation years and the two-stage regressions for the pre-financing and the financing year. In line with the univariate results, we find a strong positive relation between being PE-backed and the level of discretionary accruals around the investment year. Although discretionary accruals and PE are unrelated two years before the investment year, the relation becomes significantly positive from the pre-investment year onwards. This is further evidence in line with our first hypothesis: entrepreneurs report higher discretionary accruals shortly before the PE investment and continue to do so until one year after the PE investment. Interestingly, the coefficient on PE is higher in the two-stage regressions, both in absolute value and in significance: 0.07 ($t=1.73$) for the uncorrected OLS versus 0.91 ($t=4.79$) for the two-stage regression in the pre-financing year and 0.05 ($t=1.35$) versus 0.72 ($t=6.19$) in the financing year. This suggests that selection bias is indeed driving the uncorrected results in the years where matching took place and that the uncorrected coefficients underestimate the real impact of receiving PE on earnings management behavior. Further, we find that discretionary current

accruals are negatively related to age: younger firms report higher accruals. No other significant relations are detected in the pre-investment and the investment year.

From two years after the PE investment, the coefficient on PE declines heavily in magnitude and becomes insignificant. Furthermore, the relation between age and the level of discretionary accruals becomes less clear: while younger firms typically report higher discretionary accruals in the pre-investment years, this relation is reversed in year +2. Finally, both one and two years after the PE investment, a higher leverage coincides with lower discretionary accruals. This evidence contradicts the debt covenant hypothesis but might be driven by the substitutive character of increased monitoring making leverage a less useful control variable in this context. No further significant relations are detected.

In summary, all analyses are consistent with the first hypothesis that PE backed firms manage earnings in the run-up to the participation date. Firms which receive PE financing have, on average, high and significantly positive discretionary accruals both in the fiscal years before and in the PE investment year itself. The findings are apparent in both univariate and multivariate test specifications. Hypothesis two, suggesting a lower level of earnings management after PE investment date also finds confirmation. We observe a decline in median discretionary accruals from 2 years after the PE investment both in the univariate and the multivariate tests. Although the latter findings might partly be driven by reversing accruals, this evidence is an indication that PE investors' governance limits portfolio company's earnings management behavior *ex post*. Further tests in the following section delve deeper into the earnings quality issue in the post-PE investment period.

2.4.2 Time-series Tests of Earnings Conservatism

We investigate an additional component of earnings quality by focusing on earnings conservatism to unravel the governance impact of PE investors' on a company's financial reporting behavior. Strictly spoken, earnings are of a more conservative nature if losses are recognized timely instead of being spread over several periods (Basu, 1997). To a large extent, a higher degree of earnings conservatism coincides with a higher earnings quality since conservative financial statements are more relevant for creditors, shareholders, managers and other external parties (Ball et al., 2001; Watts, 2003).

To estimate differences in earnings conservatism we apply a variant of the Ball and Shivakumar model (2005), based on the conservatism principle of Basu (1997). Earnings are

thought to be of a higher quality if bad news appears as a transitory shock or one-time dip in current earnings levels and good news appears as a persistent shock to the earnings stream (Basu, 1997). As in Ball and Shivakumar (2005), we measure earnings conservatism as timely loss incorporation in accounting income by focusing on the tendency for income decreases to reverse. Therefore, the first-order serial dependence in earnings changes is allowed to be dependent on the conditional sign of the prior earnings change (Ball and Shivakumar, 2005). This method allows to separately identify transitory gain and loss components. If prior-period decreases exhibit a higher tendency to reverse than prior-period earnings increases, this is evidence of a higher willingness to recognize losses timely and signals a higher earnings conservatism. Detecting a higher degree of earnings conservatism for PE backed companies provides additional evidence of disciplining PE investors' governance impact on the financial reporting process.

We use different income definitions to analyze earnings conservatism tendencies in (1) current profits before taxes, but after financial income (CP), (2) profit before taxes and after extraordinary income (PBT) and (3) profit after taxes (PAT). Transitory gain and loss components are estimated by running the following regression model:

$$\Delta NI_t = \beta_0 + \beta_1 NEG(\Delta NI)_{t-1} + \beta_2 \Delta NI_{t-1} + \beta_3 NEG(\Delta NI)_{t-1} * \Delta NI_{t-1} + \varepsilon_t, \quad (3)$$

with: ΔNI_t = income level change at time t , scaled by beginning-of-the-year book value of total assets
 ΔNI_{t-1} = income level change at time $t-1$, scaled by beginning-of-the-year book value of total assets
 $NEG(\Delta NI)_{t-1}$ = dummy variable taking the value of 1 when prior-period earnings changes are negative

By making the estimation model dependent on prior period earnings decreases, we are able to study the reversion tendency of losses and gains separately. Timely recognition of losses implies a statistically negative slope coefficient for $(\beta_2 + \beta_3)$. Further, losses are recognized in a more timely way than gains if $\beta_3 < 0$. Finally, untimely recognition of gains implies smooth earnings patterns, where gains are incorporated in income only if the underlying cash flows are realized. Hence, gains tend to show up as being permanent, implying that the slope coefficient on prior period positive earnings changes (β_2) is positive, i.e. non-reversing in nature.

Consistent with other earnings conservatism studies, model properties are defined at earnings changes and not at earnings levels to correctly identifying the transitory components in income. However, working with earnings levels requires 3 subsequent earnings levels to

estimate model (3). Therefore, we are unable to study differences in earnings conservatism pre- and post-investment date since we maximally have only 2 years of earnings data available before the PE financing date. Hence, we focus specifically on differences in earnings conservatism between our both sub-samples in the post-investment years.¹⁶

Insert Table 2.4 here

Panel A of Table 2.4 reports descriptive statistics for the analyzed sub sample, i.e. for PE backed and non-PE backed observations from the investment year onwards. Mean (median) total assets are EUR 11,811,194 (2,815,549). Although we winsorized the top and bottom 1% of outliers, we still have rather high values in the sample resulting in a right-skewed distribution.¹⁷ Sales levels are only available for 2,952 out of the 4,202 observations in the analyzed sample. Average (median) sales on total assets are 102.25% (83.04%). For all observed income levels, approximately 70% of the income levels are positive and 30% have negative values. Median income levels vary between 2.06% (PBT) and 1.39% (PAT) of total assets. Table 2.4, panel B contains values for PE backed firms only.

To test for differences in timely loss reporting between both samples, we supplement model (3) with a dummy to allow for differences between PE backed and non-PE backed companies. Algebraically, this results in the following model (4):

$$\begin{aligned} \Delta NI_t = & \alpha_0 + \beta_1 NEG(\Delta NI)_{t-1} + \beta_2 \Delta NI_{t-1} + \beta_3 NEG(\Delta NI)_{t-1} * \Delta NI_{t-1} + \beta_4 PE + \beta_5 PE * NEG(\Delta NI)_{t-1} \\ & + \beta_6 PE * \Delta NI_{t-1} + \beta_7 PE * NEG(\Delta NI)_{t-1} * \Delta NI_{t-1} + \epsilon_t \end{aligned} \quad (4)$$

with: ΔNI_t = income level change at time t , scaled by beginning-of-the-year total assets
 ΔNI_{t-1} = income level change at time $t-1$, scaled by beginning-of-the-year total assets
 $NEG(\Delta NI)_{t-1}$ = dummy for prior-period negative income level change
 PE = dummy for receiving PE, taking the value 1 if the company is PE backed

When interpreting the coefficients, we are mainly interested in differences in earnings conservatism between PE backed and non-PE backed firms. Therefore, our discussion will primarily focus on $(\beta_6 + \beta_7)$ and β_7 in isolation which measure the compound effect for

¹⁶ Although we are limited to analyzing earnings figures in the post-financing period, we have a sufficiently large sample to estimate earnings conservatism patterns post PE financing date.

¹⁷ We also winsorized the top 2 and 2.5% leading to unchanged results for the conservatism tests.

differences in timely loss reporting between both samples. Table 2.5 gives an overview of the predicted sign of individual and compound coefficients' signs.

Insert Table 2.5 and Table 2.6 here

Table 2.6 reports regression results on all available firm-year observations, during the post-financing years ($n=4,202$). The results of the basic model (3) are reported in panel A and show that the adjusted R^2 is very low for the basic regression on current profit level but reaches values as high as 6.5% for profit before taxes and 6.8% for profit after taxes. Furthermore, the slope coefficient for β_3 is significantly negative. This indicates that, on average, losses are recognized more timely than gains in the pooled sample of PE backed and non-PE backed firms. Further, the compound effect ($\beta_2 + \beta_3$) is significantly negative for all three earnings levels providing evidence of timely loss recognition in general.

Table 2.6, panel B shows an increase in adjusted R^2 both for profit before taxes (8.5%) and profit after taxes (8.4%) when the PE-related variables are included. As hypothesized, we find significant differences in timeliness of loss reporting between the PE backed and non-PE backed firms. The compound coefficient for ($\beta_6 + \beta_7$) is significantly negative for PAT levels (-0.925 ; $p=0.09$) but not for PBT (-0.541 ; $p=0.24$). The results for the PAT level suggest that PE backed companies report losses more timely compared to non-PE backed companies, consistent with our third hypothesis. Further, slope coefficients for β_2 and β_3 are insignificantly different from zero, suggesting that non-PE backed firms do not have a tendency to report losses timely. This suggests that the timely loss reporting, found for the complete sample is driven by the reporting behavior of PE backed companies. Generally, these regression results provide evidence in line with our hypothesis that PE governance is associated with more timely loss reporting.

2.4.3 Accruals-based Tests of Earnings Conservatism

To further corroborate our findings that PE governance is associated with higher earnings quality, we extend our analyses by combining accruals tests in the loss recognition framework as suggested in Ball and Shivakumar (2005). These additional checks allow to verify whether firms' tendencies to report conservative earnings is indeed an indication of higher earnings

quality and not the result of random errors in accruals or simply a result of earnings management. As mentioned before, both accidental and deliberate errors in accruals are transitory in nature and cause negative serial correlation in income changes. Therefore, timely loss recognition reflects only high quality reporting if it corresponds with lower accruals recognition.¹⁸ We therefore run additional regression analyses on the entire set of post-PE investment observations in which we capture firms' attempts to recognize losses timely via accounting accruals.

We shortly explain the logic behind these additional tests. Timely gain and loss recognition attenuates the negative correlation between cash flows and accruals that is commonly found in empirical studies like Dechow (1994) or Dechow et al. (1998). This relationship follows because current revisions in cash flows of an individual durable asset (e.g. firm equipment or a production plant) are correlated with future revisions in cash flows of this asset. Hence, timely income recognition causes income levels to be contemporaneously correlated with cash flow levels. Additionally, timely recognition of losses reflecting high earnings quality suggests an asymmetry in accruals recognition because, in a high quality reporting environment, economic losses are more likely to be recognized on a timely basis compared to economic gains. These elements imply that, in a high-quality reporting environment, the second-order effect of positive correlation between accruals and cash flows will be important and will predominantly emerge in the case of losses. We test this postulation by running the following model as initiated in Ball and Shivakumar (2005):

$$ACC_t = \beta_0 + \beta_1 NEG(CFO)_t + \beta_2 CFO_t + \beta_3 NEG(CFO)_t * CFO_t + \varepsilon_t \quad (5)$$

Where the cash flow from operations (CFO_t) is computed as earnings before extra-ordinary items less accruals. $NEG(CFO)_t$ is a dummy variable taking the value of 1 if CFO_t is negative, and zero otherwise. The firm-year level of accruals (ACC_t) are measured as:

$$(\Delta Inventory + \Delta Accounts Receivable + \Delta Other Current Assets - \Delta Accounts Payable - \Delta Other Current Liabilities - Depreciation) \quad (6)$$

Both cash flow from operations and accruals figures are standardized by beginning of the period total assets. We predict a negative coefficient for β_2 , consistent with the first-order role

¹⁸ The accruals analyses performed in the earnings management tests (Table II and III) suggest lower discretionary accruals after the PE financing date. However, since these results come from a limited number of observations and that the results might, to some extent, be driven by reversing accruals, these tests insufficiently guarantee that the timely loss recognition is indeed reflecting higher earnings quality.

of accruals of mitigating noise in operating cash flow. Further, in line with the second-order argument that accrued losses are more likely in periods of negative cash flows, we predict the coefficient for β_3 to be significantly positive. Similar to the model extension in the previous section, we again complement this model with additional dummies for PE financing, leading to the following relationship:

$$ACC_t = \beta_0 + \beta_1 NEG(CFO)_t + \beta_2 CFO_t + \beta_3 NEG(CFO)_t * CFO_t + \beta_4 PE + \beta_5 PE * NEG(CFO)_t + \beta_6 PE * (CFO)_t + \beta_7 * (CFO)_t * NEG(CFO)_t + \varepsilon_t \quad (7)$$

When interpreting the coefficients, we are mainly interested in differences in the use of accruals to mitigate cash flow variations between PE backed and non-PE backed firms. The discussion will primarily focus on $(\beta_6 + \beta_7)$ and β_7 in isolation which measure the compound effect for differences in accruals use between both samples. Table 2.7 reports coefficients and predicted signs.

Insert Table 2.7 here

The results indicate that, for non-PE backed firms, accruals indeed are negatively correlated with cash flow from operations when the latter is positive, since $\beta_2 = -0.64$ and statistically significant. This finding is consistent with the commonly accepted role of accruals to remove noise in cash flows (Dechow, 1994; Dechow et al., 1998). Further, β_3 is -0.11 and statistically significant, which suggests that non-PE backed firms offset cash flow even more in years with negative cash flow, namely by 75% ($64\% + 11\%$; $p < 0.001$). Further, we observe a significantly different pattern for PE backed firms, as well in positive as in negative cash flow years. β_7 is $+0.30$ and statistically significant. This implies that PE backed firms' accruals offset cash flows by 30% less than non-PE backed firms in negative cash flow years. The sum $(\beta_2 + \beta_3 + \beta_6 + \beta_7)$ is -0.55 ($p < 0.001$), showing that PE backed firms offset accruals by 'only' 55% in negative cash flow years, which is substantially less than the figure for non-PE backed firms.

2.4.4 Additional tests and sensitivity analyses

We performed supplementary analyses to check the verifiability of our findings and found similar results. E.g. we additionally plotted distributions of earnings and earnings changes of our sample and control firms in the years around the PE financing event to study the earnings management behavior. Results of these distributions and calculated test statistics all indicate that PE backed firms overestimate their profits in the year before and year of PE financing while no such patterns were found for the control sample firms.

With respect to the time-series and accruals tests in section 2.4.2 and 2.4.3, we applied several robustness checks on the data by adjusting the winsorizing percentage, and additionally controlling for size and industry. Results all remain qualitatively equal. To test for differences in earnings conservatism and the use of accruals to achieve timely loss reporting within the PE backed sample, we performed analyses as in model (3) through model (7) for PE backed firms only and made the distinction between government and non-government PE backed firms. Results suggest that timely loss recognition does not depend on investor type. For reasons of conciseness we do not threat these findings in further detail.

2.5 Discussion and Conclusions

In this paper, we jointly examine two important attributes of earnings quality, namely earnings management and earnings conservatism for a sample private equity (PE) backed firms in the years around PE financing. We find that entrepreneurs tend to manage earnings upward prior to receiving PE, and that PE investors have a positive impact on the portfolio companies' financial reporting discipline after the investment. This study is in line with a recent stream of research like Hand (2005) in that it acknowledges the importance of financial statement information of private firms. This study not only complements accounting research by analyzing earnings quality in relation to receiving PE financing but also provides useful insights for entrepreneurial finance research which often treats the corporate reporting environment as exogenous.

To study the issue of earnings quality in relation to receiving PE financing, we exploit a specific institutional setting, namely Belgium, since this country provides one of the few institutional settings in which unlisted firms are legally obliged to report their financial statements annually. This unique characteristic provides an invaluable quantity of financial

statement data of unlisted firms and allows to examine earnings properties and financial statement quality of unlisted firms. We study earnings characteristics of a unique dataset of 556 unlisted Belgian firms receiving PE financing over the period 1985 to 1999 in the years before and after the PE financing event. Results are evaluated compared to a matched sample of non-PE backed firms.

First, we evaluate earnings management behavior of PE backed firms in the run-up to the PE financing event. We hereby extend and complement traditional research contexts which typically focus on earnings management around IPOs. We postulate and find that entrepreneurs manage earnings upward prior to the PE financing and that the aggressive earnings management behavior reduces post financing date. Results are robust for various controls and robustness checks, including a two-step Heckman regression correcting for the inevitable endogeneity problem present in the sample. Given that PE investors play an active governance role in portfolio company's boards, our results are in line with earlier findings that earnings management is negatively related to the board of directors' and the audit committee's financial sophistication (Xie et al., 2003).

Second, we study the relationship between being PE backed and earnings conservatism, measured as timely loss reporting. We find that conservative earnings reporting is significantly more prevalent in PE portfolio firms compared to matched non-PE backed firms. This result is confirmed in both a test for transitory time-series components in income and a specification test based on the relation between cash flow and accruals as in Ball and Shivakumar (2005). All results are robust for different income definitions and additional sensitivity analyses.

The findings in the current study are important in that they show that entrepreneurs manage earnings prior to receiving PE financing, hereby potentially trying to influence their chances of getting money. It remains, however, an open question to what extent this behavior is an attempt to fool PE investors or is a Nash equilibrium state resulting from the prisoner's dilemma game between entrepreneurs and PE investors, as suggested in Shivakumar (2000). The results also indicate that PE investors' governance positively affects the earnings quality (measured by earnings management and earnings conservatism) of their portfolio firms once PE investors are on board. They hereby contribute to the professionalization of their entrepreneurial portfolio companies. This has important implications for several economic agents like suppliers, customers, banks or other creditors that rely on financial statement information of these firms. It shows that financial statements of PE backed firms reflect a

higher earnings quality compared to similar non-PE backed firms. This study is one of the first to document the professionalization impact of PE investors on the financial reporting quality of their portfolio firms.

Our findings are, however, subject to some caveats. First, we acknowledge that companies which attract PE financing have highly specific individual characteristics potentially leading to biased results. Specifically, the selection of matched non-PE backed companies raises concerns about endogeneity bias. We try to tackle this potential bias in our data by applying a two-step regression as per Heckman (1979) leading to even stronger results. However, since it is difficult to control for all potential differences between both samples, we acknowledge that omitted firm-specific characteristics might still drive the accruals estimations partly. Second, the database of PE backed firms used in the analyses only consists of firms that actually received PE financing. This means that some firms of the control sample might have applied for PE, but were not able to attract it. This classification problem, if present in any form, might bias our estimates with respect to both earnings management and earnings conservatism downwards and, as such, makes our findings only even more compelling.

2.6 Appendices

2.6.1 Appendix 2.A: Accruals Estimation

We estimate the earnings management component by focusing on a firm's abnormal level of current accruals. Guenther (1994) and Teoh et al. (1998a and 1998b) show that current accruals are more likely to be used for earnings management actions than long term accruals (e.g. depreciation). Reasons for this finding are that (1) long term accrual accounts are less flexible in managing or perhaps need more time to change and (2) long term accruals changes are more visible (Guenther, 1994). To estimate the expected (i.e. non-discretionary) current accruals of each firm at a specific point in time, we run the following cross-sectional OLS regressions on the two-digit sector peer group.

$$\frac{CA_{j,t}}{TA_{j,t-1}} = \alpha_0 \left(\frac{1}{TA_{j,t-1}} \right) + \alpha_1 \left(\frac{\Delta GM_{j,t} - \Delta REC_{j,t}}{TA_{j,t-1}} \right) + \varepsilon_{j,t} \quad (i)$$

with: $CA_{j,t}$ = current accruals for sector j at time t
 $\Delta GM_{j,t}$ = change in gross margin for sector j at time t
 $\Delta REC_{j,t}$ = growth in receivables for sector j at time t
 $TA_{j,t-1}$ = beginning of the year total assets for sector j at time t

This estimation is a variation on the modified Jones model (by Dechow et al., 1995) where sales growth is proxied by change in gross margin (GM). The reason for this modification is that Belgian SMEs are allowed to report abbreviated financial statements when they comply with a number of requirements. A company should (1) employ less than 100 employees on average per year registered or (2) not meet two or more of the following criteria: (i) annual turnover > EUR 6,250,000, (ii) balance sheet total > EUR 3,125,000 and (iii) average number of employees > 50. One major difference between abbreviated and complete financial statements is that disclosure of sales levels is only compulsory in complete financial statements. In abbreviated formats, the gross margin (GM) is reported instead of sales levels. This value equals (Turnover – Costs of Raw Materials and Consumables – Costs of Services and Other Goods). Given that the majority of our sample firms reports an abbreviated financial statement, we use GM figures in the accruals estimation to avoid ample missing data.

We feel confident that the incorporation of this GM variable does not harm our accrual regressions nor the non-discretionary accruals estimate. The original idea of including

$\Delta(\text{Sales})$ in accruals regressions is to control for changes in non-discretionary accruals caused by changing conditions of the firm (Jones, 1991). However, this variable is by itself not completely exogenous since firm managers can exercise their discretion in revenue recognition of receivables. Therefore, Dechow et al. (1995) suggest a modified version of the original Jones (1991) model where change in revenues are adjusted for change in receivables. Here, we apply this modified version and also subtract the change in receivables to control for earnings management in the credit sales in the event period. The model we apply to estimate non-discretionary accruals further uses change in gross margin instead of change in sales and therefore, by definition, additionally excludes costs of goods and services the firm purchased over the period of interest. Since cost items are also subject to potential earnings management actions (i.e. managers have discretionary power in the timing of cost recognition), it is sensible to estimate the accruals regressions with gross margin as a control for the changes in non-discretionary accruals caused by real changes in conditions. Moreover, correlations between gross margin and sales levels for sample and control firms of which both values are available are highly positive across all industry sectors (ρ between 0.72 and 0.93 for all one-digit sector industries, reaching p -values that are always lower than 0.0001).

In a next step, we measure the level of non-discretionary current accruals for an individual firm i for each observation year t by using the estimated coefficients, \hat{a}_0 and \hat{a}_1 of model (i) estimated for each two-digit sector peer group (respectively one-digit if less than 7 companies were available in the two-digit sector peer group, as in Dechow et al. (2003)):

$$NDCA_{i,t} = \hat{a}_0 \left(\frac{1}{TA_{i,t-1}} \right) + \hat{a}_1 \left(\frac{\Delta GM_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}} \right), \quad (ii)$$

with: $NDCA_{i,t}$ = non-discretionary current accruals for firm i at time t
 $\Delta GM_{i,t}$ = change in gross margin for firm i at time t
 $\Delta REC_{i,t}$ = growth in receivables for firm i at time t
 $TA_{i,t-1}$ = beginning of the year total assets of firm i at time t

Finally, the discretionary current accrual component for firm i at time t is the difference between the firm-year observed current accruals and the expected, non-discretionary accruals:

$$DCA_{i,t} = \frac{CA_{i,t}}{TA_{i,t-1}} - NDCA_{i,t} \quad (iii)$$

2.6.2 Appendix 2.B: Two-step Heckman Correction Test

The two step Heckman correction test employs a two-equation model in an attempt to control for potential selection bias in the data. Heckman (1979) showed that regression results might be contaminated by selection bias but that one can simply correct for it by running a two-step equation model.

In our setting, the first equation is a probit regression which models the probability of receiving PE as a function of intrinsic characteristics of the observed companies. We identified 5 characteristics which might distinct PE backed firms significantly from non-PE backed firms:

$$PE[1] = \beta_0 + \beta_1(\Delta TA) + \beta_2(Gearing) + \beta_3\left(\frac{Accprofit}{TA}\right) + \beta_4\left(\frac{Investments}{TA}\right) + \beta_5\left(\frac{Cash}{TA}\right) + \varepsilon \quad (iv)$$

‘Change in total assets’ ($=\Delta TA$) measures the growth characteristics of all sample companies and controls for potential differences in growth characteristics between our PE backed and non-PE backed sample. ‘Gearing’ quantifies the solvency situation of a company. We expect the gearing ratio to differ substantially between both groups since PE backed firms have higher financing needs than non-PE backed matched equivalents prior to the PE investment date. ‘Accumulated profit’ ($=Accprofit$) normalized by total assets measures the internal profitability of a firm. Again, given their high need for financing, we expect PE backed firms to have lower internally accumulated profits. *Investments*, expressed as a percentage of total assets measures the investment profile of both samples. We incorporate this measure since anecdotal evidence shows that PE backed companies typically have a higher investment rate compared to non-PE applicants. Finally, *Cash* relative to assets measures total cash available at year-end.

The argumentation to incorporate these variables in the selection equation is found in the entrepreneurial finance literature which documents that PE backed firms often differ from non-PE backed firms on these variables (e.g. Gompers and Lerner, 1999; Wright and Robbie, 1998). Moreover, descriptive statistics (*available upon request*) show (marginally) significant differences between both samples, except for total *Investments* made and further substantiate the use of these variables in the selection equation. Because of the implied matching criteria, other variables in the equation of interest do not differ substantially between both groups (PE backed and non-PE backed) and are therefore not included in the selection equation.

The estimates of this probit selection equation model are used to compose the inverse Mills ratio. This ratio is set equal to the hazard function of being selected for receiving PE. Algebraically: $\lambda(Z) = \phi(Z)/\Theta(Z)$, with $\phi(Z)$ = the standard normal probability distribution function and $\Theta(Z)$ = the standard normal cumulative distribution function. If selection bias is driving the results, the error terms of the probit regression and the original test model are typically correlated.

The second equation is based on the original OLS model, taking into account the effect of the inverse Mills ratio: i.e. the effect of being selected. By estimating both equations simultaneously, we can retrieve the unbiased estimate of the coefficient on the PE variable and isolate the effect of selection.

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2.8 Tables and Figures

Table 2.1
Sample Characteristics of PE Backed and non-PE backed Companies

Panel A: Stage of Financing and Age Descriptives in PE Financing Year*					
PE backed firms Only	<i>Start-up stage</i>	<i>Early stage</i>	<i>Later stage</i>	<i>Total</i>	
Number of firms per stage	205 (37%)	100 (18%)	251 (45%)	556 (100%)	
	N	Mean	Median	Min.	Max.
PE backed firms	556	8.73	4.00	0.00	74.00
Non-PE backed firms	556	9.94	4.00	0.00	91.00

* Note: Firms are defined as start-ups when they are younger than two years at the time of participation. Early stage companies are between two and five years old and later stage companies are older than five years. Descriptive statistics on age are for the investment year only.

Panel B: Descriptives of Total Assets , Growth (in Assets) and Leverage*					
PE backed sample	N	Mean	Median	Min.	Max.
Total Assets	4,501	9,010,546	2,662,302	20,997	203,094,281
Asset Growth	4,501	5.94%	5.79%	-85.29%	244.07%
Leverage	4,501	68.79%	70.93%	0.06%	629.39%
Non-PE backed sample	n	Mean	Median	Min.	Max.
Total Assets	4,741	4,978,984***	1,592,765***	28,483	98,512,986
Asset Growth	4,741	2.63%***	3.79%***	-73.65%	233.07%
Leverage	4,741	65.37%***	68.96%***	0.04%	228.91%

* Note: Descriptives come from the PE backed and non-PE backed sample separately and contain values of all pooled firm-year observation years. We filtered the top and bottom 1% outliers for all variables to avoid distorting impact of outliers. Next to total assets, asset growth is calculated to compare the growth characteristics of both samples. Asset growth is measured as $(\text{Total Assets}_t - \text{Total Assets}_{t-1}) / (\text{Total Assets}_{t-1})$. Leverage is computed as follows: $(\text{Total Liabilities} / \text{Total Assets})$. Differences between sample means (medians) are labeled next to the Non-PE backed values and result from applying a two-tailed *t*-test (Mann-Whitney U test). *** $p < 0.10$, ** $p < 0.05$, * $p < 0.01$.

Panel C: Sector Distribution					
Sector code	Industry	Frequency	%	Cum. %	
01	Agriculture and hunting	2	0.36	0.36	
02	Forestry	1	0.18	0.54	
03	Fishing	3	0.54	1.08	
14	Mineral Oil refining	1	0.18	1.26	
10-19	Energy and water	1	0.18	1.26	
21	Extraction and preparation of metal sources	1	0.18	1.44	
22	Production and preliminary processing of metals	5	0.90	2.34	
23	Extraction of minerals (other than metallic and energetic)	2	0.36	2.70	
24	Manufacture of non-metallic minerals	12	2.16	4.86	

25	Chemical industry	13	2.34	7.20
20-29	Chemical industry	33	5.94	7.20
31	Manufacture of metal articles	43	7.73	14.93
32	Mechanical engineering	17	3.06	17.99
33	Electrical engineering	4	0.72	18.71
34	Manufacturing of motor vehicles/parts	34	6.12	24.82
35	Manufacturing of other means of transport	5	0.90	25.72
36	Instrument engineering	2	0.36	26.08
37	Manufacturing of fine metals	4	0.72	26.80
30-39	Metal manufacture: mechanical, electrical and instrument engineering	109	19.60	26.80
41	Food, drink and tobacco industries	19	3.42	30.22
43	Textile industry	4	0.72	30.94
44	Leather industry	1	0.18	31.12
45	Footwear and clothing industry	9	1.62	32.73
46	Timber and wooden furniture industries	23	4.14	36.87
47	Manufacturing of paper and paper products	21	3.78	40.65
48	Processing of rubber and plastics	8	1.44	42.09
49	Other manufacturing industries	2	0.36	42.45
40-49	Other manufacturing industries	87	15.65	42.45
50	Building constructs	30	5.40	47.84
50-59	Building and civil engineering industry	30	5.40	47.84
61	Wholesale distribution	71	12.77	60.61
62	Scrap and waste materials handling	4	0.72	61.33
63	Wholesale agents	11	1.98	63.31
64	Retail distribution	13	2.34	65.65
66	Hotels and catering	6	1.08	66.73
67	Repair of consumer goods and vehicles	3	0.54	67.27
60-69	Distributive trades, hotels, caters and repairs	108	19.43	67.27
72	Land transport	8	1.44	68.71
75	Air transport	3	0.54	69.24
76	Supporting transport services	4	0.72	69.96
77	Travel agents	3	0.54	70.50
79	Communication services	4	0.72	71.22
70-79	Transport and communication	22	3.96	71.22
81	Credit transactions institutes	15	2.70	73.92
83	Computer services	94	16.91	90.83
84	Renting and leasing activities	6	1.08	91.91
80-89	Business services	115	20.69	91.91
92	Sanitary services	3	0.54	92.45
93	Educational services	1	0.18	92.63
94	Research and Development	4	0.72	93.35
97	Recreational services	27	4.86	98.20
98	Personal services	4	0.72	98.92
99	Domestical services	6	1.08	100
90-99	Other services	45	8.10	100
TOTAL	All sectors	556	100	100

Table 2.2
Descriptive Statistics on Earnings Management Sub Samples of PE and Non-PE backed Firms (Panel A) and
Time-Series Distribution of Discretionary Current Accruals (In % of lagged Total Assets: Panel B) *

Panel A: Descriptives of Age (in PE Financing Year), Total Assets , Growth (in Assets) and Leverage *					
Age (at t₀)	N	Mean	Median	Min.	Max.
PE backed firms	166	17.83	12.00	3.00	74.00
Non-PE backed firms	160	21.53	18.00	3.00	91.00
PE backed sample (pooled years)					
Total Assets	719	10,187,146	4,449,156	118,171	97,673,941
Asset Growth	719	22.04%	7.82%	-85.29%	244.07%
Leverage	719	70.49%	73.97%	0.17%	565.21%
Non-PE backed sample (pooled years)					
Total Assets	738	7,659,125***	3,803,492***	103,917	84,344,086
Asset Growth	738	7.11%***	2.88%***	-73.65%	233.07%
Leverage	738	69.81%*	69.80%***	2.49%	228.91%

Panel B: Time Series Distribution of Discretionary Current Accruals

	Year - 2	Year - 1	Year 0	Year 1	Year 2
Median DCA – PE backed	2.13%	2.96%	4.05%	2.50%	1.15%
N° of observations	166**	151***	138***	137**	127
<i>P within</i>	(0.016)	(0.000)	(0.000)	(0.013)	(0.541)
Median DCA – Non-PE backed	1.25%	1.01%	0.13%	0.04%	-0.52%
N° of observations	160	156	146	143	133
<i>P within</i>	(0.101)	(0.106)	(0.152)	(0.629)	(0.819)
<i>P (between)</i>	(0.186)	(0.028)***	(0.035)***	(0.031)***	(0.493)

* This table contains descriptive statistics on the sub sample of PE backed and non-PE backed firms on which earnings management tests are conducted (Panel A). These descriptive statistics show that – compared to the characteristics of the full sample – the earnings management sub sample contains (1) older firms, (2) larger firms and (3) higher growth profile firms than in the full sample reported in Table 2.1. Data requirements, i.e. each firm in the sample should have recorded financial statements from three years before the PE financing event, largely explain these differences between the full sample observations and this earnings management sub sample observations. The higher mean growth profile of both sample and control firms compared to full sample firms, however, cannot be addressed by the selection criteria. However, the specific capital injection that takes place in the PE financing year (and maybe is repeated in further years) might explain the significantly higher growth rate (rise in asset structure) for the PE backed sample. In Panel B, median discretionary current accruals evolutions for both the PE backed and the non-PE backed sample are provided. The initial sample consisted of 556 private equity backed firms and 556 control firms, matched on (i) size, (ii) age and (iii) sector code in the year before the PE investment. We only included companies with available data in a time frame of 2 years before until 2 years after the participation date to evaluate the time-series discretionary accruals trend over this period. As a result, only companies of more than 2 years old could be incorporated in this calculation. Further, a substantial number of companies had missing data to calculate the DCA level. Eventually, this resulted in 166 observations for the PE backed sample and 160 for the non-PE backed sample in (t-2). Remaining differences in number of observations between both samples are a result of lacking data in a specific year. Current accruals consist of the change in non-cash current assets and the change in current liabilities. Non-

discretionary current accruals (NDCAs) are current accruals by a within two-digit (respectively one-digit) NACE industry cross-sectional modified Jones model (cfr. Teoh et al., 1998a and 1998b: see appendix 2.A for more details). DCAs are scaled by lagged total assets and measure the direction and the average amount of earnings management at each specific observation year. *P*-values (within) are calculated by running a simple *t*-test and measure whether median DCA levels are significantly different from zero for each observation year separately. *P*-values (between) come from a two-tailed Wilcoxon signed rank test and measure differences between sample medians. *Note*: *** = significance at the 1% confidence level, ** = significance at the 5% confidence level, * = significance at the 10% confidence level.

Table 2.3
Level of Earnings Management in all Observed Years (OLS and two-stage OLS Regression Models)*

Variable	Year-2		Year-1		Year 0		Year+1		Year+2	
	OLS Coeff.	t-stat.	OLS Coeff.	t-stat.	2stage OLS Coeff.	t-stat.	OLS Coeff.	t-stat.	OLS Coeff.	t-stat.
Intercept	0.138	0.84	0.235	1.05	0.043	0.19	0.351	1.74 [*]	0.089	0.52
PE backing dummy	-0.008	-0.28	0.065	1.73 [*]	0.914	4.79 ^{***}	0.045	1.35	0.039	1.49
Ln(size)	-0.005	-0.47	-0.007	-0.48	-0.021	-1.46	-0.017	-1.35	-0.005	-0.49
Ln(age)	-0.033	-1.89 ^{**}	-0.051	-2.01 ^{**}	-0.043	-1.74 [*]	-0.074	-3.44 ^{***}	-0.011	-0.63
Change in earnings	0.007	0.69	-0.003	-0.25	-0.003	-0.28	0.006	0.49	0.001	0.14
Leverage	-0.045	-1.22	-0.043	-0.64	-0.083	-1.26	0.046	0.69	-0.059	-4.45 ^{***}
Lambda	—	—	—	—	-0.545	-4.53 ^{***}	—	—	—	—
Sector dummies incl. # of observations	—	326	—	307	—	307	—	284	—	260
Adjusted R ²	—	0.041	—	0.036	—	0.100	—	0.054	—	0.063
Selection Equation: probit model	—	—	—	—	—	χ ²	—	—	—	χ ²
Intercept	—	—	—	—	0.004	0.00	—	—	-0.126	1.14
Change in total assets	—	—	—	—	0.312	3.16 [*]	—	—	0.663	9.16 ^{***}
Gearing	—	—	—	—	0.007	0.51	—	—	0.001	0.00
Accumulated Profit/TA	—	—	—	—	-0.176	0.81	—	—	-0.561	1.72
Investments/TA	—	—	—	—	0.690	1.13	—	—	0.662	0.86
Cash available/TA	—	—	—	—	-1.957	3.51 [*]	—	—	-1.432	1.90

* This table presents the results of 5 yearly regression analyses of the level of earnings management, proxied by discretionary current accruals, on a number of firm-specific control variables:

$$DCA_i = \alpha_i + \beta_{PE} PE_i + \beta_{size} \ln(size)_i + \beta_{age} \ln(age)_i + \beta_{IBX} \Delta(IBX)_i + \beta_{LEV} Leverage_i + \Theta IND_i + \epsilon_i$$

PE backing is an interaction variable taking the value of 1 if the firm received PE financing and 0 otherwise. This variable allows to test for the differences in earnings management between PE backed and non-PE backed firms. Ln(size) and Ln(age) are the natural logarithms of total assets and age expressed in number of in years, respectively. Change in earnings is the year-on-year change in income before extraordinary

items, deflated by lagged income before extraordinary items (ΔIBX). Leverage equals (Total liabilities)/Total Equity. We included sector dummies at a one-digit NACE level. The coefficient are not reported for the sake of brevity. We mention that NACE sector 3 and 4 report accruals more aggressively compared to other sectors over most of the years. In unreported regressions, we included time dummies leading to very similar results. The coefficients in the standard OLS regression model are reported for all years. All test-statistics are White (1980) corrected for heteroscedasticity. We performed Heckman 2stage OLS Regressions for the matching years (pre-financing year and financing year, respectively) which control for endogeneity problems in our sample. More details are provided in Appendix 2.B. There are 5 independent variables in our first selection equation to test the hazard of receiving PE financing. Change in total assets measures the firm's growth and equals $[(TA_t) - (TA_{t-1})] / (TA_{t-1})$. Gearing is the level of a firm's outstanding debt on the level of equity and controls for the firm's solvency situation. Accumulated profit shows a firm's past profitability and measures the internal financing capacity of companies under investigation. Investments measure a company's investment intensity while cash available controls for the liquidity position of a company. Accumulated profit, Investments and Cash Available are all deflated by total assets to avoid heteroscedasticity problems. *Note: *** = significance at the 1% confidence level, ** = significance at the 5% confidence level, * = significance at the 10% confidence level*

Table 2.4
*Descriptive Statistics of the Transitory Earnings Sample (From the Investment Year Onwards) **

Panel A:	Total Assets	Sales /TA	CP/TA	PBT/TA	PAT/TA
All		(%)	(%)	(%)	(%)
Number obs.	4,202	2,952	4,202	4,202	4,202
Mean	11,811,194	102.25	-0.48	-0.51	-0.53
% > 0	100	100	68	71	70
% < 0	0	0	32	29	30
25% percentile	956,416	16.54	-1.05	-0.54	-0.75
Median	2,815,550	83.04	1.87	2.06	1.39
75% percentile	7,874,784	153.14	6.79	7.21	5.21
Panel B:	Total Assets	Sales /TA	CP/TA (%)	PBT/TA (%)	PAT/TA (%)
PE backed sample		(%)			
Number obs.	2,062	1,555	2,062	2,062	2,062
Mean	15,482,927	92.14	-1.01	-1.08	-1.09
% > 0	100	100	67	69	68
% < 0	0	0	33	31	32
25% percentile	1,409,262	10.34	-1.47	-1.23	-1.31
Median	4,033,302	81.37	1.54	1.53	1.09
75% percentile	11,337,600	134.49	5.78	6.12	4.62

* Note: this table presents descriptive values for total assets (TA), sales, current profit (CP), profit before taxes (PBT) and profit after taxes (PAT) with all variables (except for total assets itself), deflated by total assets in the year of PE investment and post-investment years. This sample is used for the transitory earnings regressions as in model (4) to (6) and the accruals-cash flow regressions as in (7) to (9). Panel A contains values for all available observations, i.e. PE backed and non-PE backed. Panel B shows descriptives of the subsample of PE-backed companies only.

Table 2.5
Coefficients and Expected Signs in Interaction Regressions*

Model (5): differences in earnings conservatism between PE backed and non-PE backed companies:

$$\Delta NI_t = \alpha_0 + \beta_1 NEG(\Delta NI)_{t-1} + \beta_2 \Delta NI_{t-1} + \beta_3 NEG(\Delta NI)_{t-1} * \Delta NI_{t-1} + \beta_4 PE + \beta_5 PE * NEG(\Delta NI)_{t-1} + \beta_6 PE * \Delta NI_{t-1} + \beta_7 PE * NEG(\Delta NI)_{t-1} * \Delta NI_{t-1} + \varepsilon_t$$

SAMPLE	ACTION	INTERPRETATION	PREDICTED SIGN
Non-PE backed	Timely recognition of losses	$(\beta_2 + \beta_3) < 0$?
	Losses are recognized more timely than gains	$(\beta_3) < 0$?
PE backed	Timely recognition of losses	$(\beta_2 + \beta_3) + (\beta_6 + \beta_7) < 0$	–
	Losses are recognized more timely than gains	$(\beta_3 + \beta_7) < 0$	–
PE backed versus non-PE backed	PEB recognize losses more timely compared to non-PEB companies	$(\beta_6 + \beta_7) < 0$	–
	PEB recognize losses more timely than gains compared to non-PEB companies	$(\beta_7) < 0$	–

* This table gives an overview of the expected coefficient signs to be observed in the time-series income regressions. We do not postulate any specific relation for the sample of non-PE backed firms and we explicitly formulate the expectations with respect to timely loss recognition and being PE backed.

Table 2.6:
Timely Loss Recognition Regression, Controlling For Differences Between PE and Non-PE Backed Firms *

Model 1:							
(1) Basic model (4)							
(2) Model inclusive PE indicator variables (model 5)							
Variable		coefficient	t-value	coefficient	t-value	coefficient	t-value
(1) Basic model		Current profit/loss after financial income		Profit before taxes, after extraordinary income		Profit after taxes (bottom line results)	
Intercept	(β_0)	0.024	0.88	-0.256	-4.79***	-0.226	-4.22***
NEG(ΔNI) _{t-1}	(β_1)	-0.031	-0.74	0.225	2.70***	0.163	1.99***
ΔNI_{t-1}	(β_2)	0.029	-0.33	2.541	17.00***	2.682	17.47***
NEG(ΔNI) _{t-1} * ΔNI_{t-1}	(β_3)	-0.523	-1.88**	-3.571	-7.24***	-3.835	-7.64***
Adjusted R ²			0.22%		6.48%		6.83%
N° observations			4,202		4,202		4,202
 (2) with PE dummies							
Intercept	(β_0)	-0.001	-0.02	0.001	0.01	-0.004	-0.06
NEG(ΔNI) _{t-1}	(β_1)	-0.001	-0.03	-0.014	-0.12	-0.004	-0.03
ΔNI_{t-1}	(β_2)	-0.083	-0.42	-0.120	-0.39	-0.112	-0.31
NEG(ΔNI) _{t-1} * ΔNI_{t-1}	(β_3)	-0.352	-0.78	-0.584	-0.73	-0.492	-0.58
PE	(β_4)	0.054	0.99	-0.361	-3.37***	-0.287	-2.66***
PE * NEG(ΔNI) _{t-1}	(β_5)	-0.062	-0.73	0.330	1.99**	0.178	1.09
PE * ΔNI_{t-1}	(β_6)	0.061	0.28	3.441	9.73***	3.425	8.71***
PE * NEG(ΔNI) _{t-1} * ΔNI_{t-1}	(β_7)	-0.262	-0.45	-3.982	-3.93***	-4.350	-4.13***
Adjusted R ²			0.20%		8.46%		8.43%
n			4,202		4,202		4,202

* This regression using time-series relations estimates reversals in past year's earnings changes, dependent on current year's earnings changes and controlling for (1) previous negative earnings change and (2) receiving PE financing. ΔNI_{t-1} is the change in earnings from the previous period, NEG(ΔNI)_{t-1} is a dummy variable taking the value of 1 when previous year's earnings are negative and PE is a dummy variable taking the value 1 when the firm received PE:

$$\Delta NI_t = \alpha_0 + \beta_1 NEG(\Delta NI)_{t-1} + \beta_2 \Delta NI_{t-1} + \beta_3 NEG(\Delta NI)_{t-1} * \Delta NI_{t-1} + \beta_4 PE + \beta_5 PE * NEG(\Delta NI)_{t-1} + \beta_6 PE * \Delta NI_{t-1} + \beta_7 PE * NEG(\Delta NI)_{t-1} * \Delta NI_{t-1} + \varepsilon_t$$

Note: ***: statistically significant at 1% confidence level, **: statistically significant at 5% confidence level, *: statistically significant at 10% confidence level.

Table 2.7
Accruals – Cash Flow Regression, Controlling For Differences Between PE and Non-PE Backed Firms *

Accruals – Cash Flow Regression				
Dependent Variable = Accruals				
Variable		Predicted sign	Coefficient	t-value
Intercept	(β_0)	?	-0.004	-1.06
NEG(CFO) _t	(β_1)	?	0.009	1.14
CFO _t	(β_2)	-	-0.642***	-29.95
NEG(CFO) _t * CFO _t	(β_3)	?	-0.115**	-2.44
PE	(β_4)	?	0.001	0.07
PE * NEG(CFO) _t	(β_5)	?	-0.002	-0.15
PE * CFO _t	(β_6)	?	-0.097***	-3.04
PE * NEG(CFO) _t * CFO _t	(β_7)	+	0.303***	4.63
Adjusted R ²				51.77%
n				4,090

* This regression estimates a piece-wise linear relation between accruals and cash flows. The first-order effect between accruals and cash flows is expected to be negative, predicting a negative coefficient for β_2 and ($\beta_2 + \beta_6$). Our postulation that earnings conservatism corresponds with higher earnings quality if contemporaneous cash flows are negative and that earnings of PE backed firms are believed to be of a higher quality, suggests that $\beta_7 > 0$. With respect to the variables used in the model, Accruals = (Δ Inventory + Δ Debtors + Δ Other current assets - Δ creditors - Δ Other current liabilities - Depreciation. Cash flow from operations (CFO)_t is computed as earnings before extra-ordinary items less accruals. NEG(CFO)_t is a dummy variable taking the value of 1 if CFO_t is negative, and zero otherwise. Both cash flow from operations and accruals figures are standardized by beginning of the period total assets. The regressions exclude the 1% top and bottom observations in Accruals and CFO_t to minimize the impact of outliers. Note: ***: statistically significant at 1% confidence level, **: statistically significant at 5% confidence level, *: statistically significant at 10% confidence level.

CHAPTER 3:
PRIVATE EQUITY INVESTMENTS AND
DISCLOSURE POLICY

Private Equity Investments and Disclosure Policy [★]

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Abstract

We investigate whether a firm's disclosure policy is affected by the changing corporate setting and intensified corporate governance associated with private equity (PE) investments. For a unique sample of unquoted PE backed firms we observe a significant switch to increased financial disclosure in the pre-investment year, consistent with the hypothesis that entrepreneurs attempt to reduce information asymmetries inherent to the PE application by increasing their disclosure levels. Further, we document that the governance and professionalization impact of PE investors affects their portfolio firms' financial disclosure positively. Finally, differentiating on investor type (government versus non-government related) reveals no overall effect on disclosure, both in the pre- as in the post-investment years. Results are robust to various sensitivity checks.

JEL classification: G30, M10, M41

Keywords : Disclosure, private equity, unlisted firms, monitoring, corporate governance.

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3.1 Introduction

Since decades, corporate decisions to disclose information to outsiders have been of interest for both analytical and empirical accounting researchers. This issue is of major importance as economic theory suggests that a firm's disclosure policy is negatively related to its cost of capital since disclosure reduces information asymmetries. Analytical studies have modeled the discretionary disclosure of information in various settings resulting in full disclosure (e.g. Grosman (1981), Milgrom (1981)) and partial disclosure equilibria (Bhattacharya and Ritter (1983), Verrecchia (1983), Diamond and Verrecchia (1991), Gigler (1994)). Empirical work on corporate disclosure is rooted in the 1960s and typically examines the effect of increased levels of disclosure on a firm's ability to reduce agency costs. However, results of these studies are mixed. Other studies focus explicitly on the interaction between a firm's corporate governance structure and its disclosure policy. Again, results are mixed: authors find both positive and negative relations between the intensity of a firm's corporate governance structure and its disclosure policy.

The current study is situated in the latter stream of research, in that we study the impact of changes in ownership structure and corporate governance on a firm's disclosure policy. More specifically, we examine disclosure policies of a large hand-collected sample of Belgian unlisted firms receiving private equity (PE) financing from professional equity investment companies, both in the period before and after the PE investment.¹⁹ The motivation for using this dataset stems from the unique Belgian institutional and legal framework which requires all national companies (both listed and unlisted) to file yearly financial statements to the National Bank of Belgium. This offers a richness of financial statement information and provides the opportunity to study the effect of a change in ownership and governance structure resulting from the PE investment on a firm's disclosure policy, even when firms are not subject to stock exchange reporting requirements. Further, this dataset is unique in that it contains (changes in) firm-specific disclosure observations around a clearly identified PE financing event and thus allows to study corporate disclosure policies as a response to information-asymmetries and agency problems inherent to the PE offering. As such, this

¹⁹ We use the term private equity (PE) rather than venture capital throughout this study, based on the characteristics of our sample. According to the European Venture Capital and Private Equity Association (EVCA) definition, 'venture capital' is defined as a "subset of private equity and refers to equity investments made for the launch, early development, or expansion of a business." Private equity is broader in meaning and is also used to define "external equity capital that is raised to strengthen a company's balance sheet, to make acquisitions or to finance a management buy-out or buy-in" (EVCA Glossary). Since a considerable number of our observations (cfr. *infra*) refer to later stage deals and hence do not satisfy the exact definition of venture capital, we use private equity to label all our equity financed deals.

research takes into account that disclosure decisions are non-random events and responds to the worry of researchers that disclosure is often treated independently from a firm's changing environment or economics (Healy and Palepu (2001)).

A study like this is interesting for several reasons. Studies on unlisted firms is appealing in its own right, due to the predominance of private companies in the economy and the fact that only marginal attention has been paid to these kind of firms in empirical studies.²⁰ Moreover, the PE setting is particularly interesting since it is characterized by various information asymmetries and agency problems which inherently affect the business process and organization. Therefore, the use of financial statement information is important in a PE context, even for unlisted firms (Hand (2005)). We acknowledge the importance of financial statement information and study the relation between the (nearby) governance of a PE investor and a firm's disclosure policy. Hereby, the current study not only complements accounting research on determinants of disclosure but also entrepreneurial finance research which often treats the corporate reporting environment as exogenous.

We argue that a firm discloses more information to the outside world when raising PE finance and derive this argument from basic economic theory. The information asymmetry problem that typically arises between a better-informed entrepreneur and outside PE investors gives rise to the lemons problem, which causes good and bad projects to be valued at an average level (Akerlof (1970)). In an attempt to resolve this problem, the best entrepreneurs signal their superior quality and increased disclosure might be a valuable instrument to do so. Various studies have shown that financial figures are key determinants in screening and selecting portfolio companies, especially in Continental Europe (MacMillan, Zemann and Subbanarasimha (1987); Fried and Hisrich (1994); Wright and Robbie (1998); Manigart et al. (2000)). Moreover, survey evidence shows that more than 70% of professional investors labels accounting disclosure as the most important item which impacts their investment decision (McKinsey (2002)). Consequently, we argue that high quality entrepreneurs showcase their financial reporting openness and professionalism to outsiders by increasing their disclosure levels. We therefore expect and also find evidence of increased disclosure of financial information in the year before firms get PE.

²⁰ Recent studies acknowledge this shortage of attention and explicitly study earnings characteristics of unlisted firms in a regulatory setting where financial reporting requirements of unlisted firms are similar to those of listed firms (e.g. Ball and Shivakumar (2004), Hand (2005)). The importance and contribution to the economy of unlisted firms is high. In Europe, unlisted firms constitute over 99% of all private non- agricultural entities and hence are a non-negligible part of the economy. Figures for Belgium are similar to European averages in that about 99% of all Belgian firms are unlisted and they contribute to the large majority of total GDP.

Second, we argue that portfolio firms' disclosure policies are affected by PE investors' governance. This argument originates from the well-illustrated phenomenon that PE investors are close monitors of their portfolio firms (Gompers (1995), Sapientza, Manigart and Vermeir (1996), Kaplan and Strömberg (2002)). These monitoring efforts are particularly driven by the agency problem, as described in Jensen and Meckling (1976), where the interests of principals (here: PE investors) and agents (here: entrepreneurs-managers) are not perfectly aligned. As a response to the agency problems, PE investors are intensively involved in their portfolio firms' day-to-day activities and contract a substantial number of controls like cash flow and control rights contingent upon observed performance measures (Gompers (1995), Robbie and Wright (1998), Gompers and Lerner (2001), Kaplan and Strömberg (2002)). This strong PE investor involvement results in a substantial change in governance and positively affects the professionalism the firm is operating with. We argue and show that this intensified governance and professionalization is noticeable in the way financial reporting is conducted and, as such, is manifested in a higher disclosure of financial information to outsiders.

To document these propositions empirically, we study disclosure policies of a large sample of unlisted Belgian PE backed firms from (at most) 3 years before until (at most) 5 years after they received PE for the first time in their history, and compare these with a matched sample of independent firms that never received PE. Since the firms under analysis are unlisted and press releases or extended annual reports are rare for these kind of firms, we gauge a firm's disclosure behavior by looking at its willingness to report complete (i.e. more detailed) financial statements when abbreviated (i.e. shorter in length, providing less detail) statements are sufficient to comply with legal requirements. Complete financial statements require more intensive preparation and financial expertise and contain more competitive information that can leak to external parties. Hence, complete financial statement disclosers incur substantially higher proprietary costs than firms which only report abbreviated financial statements. In the pre-PE financing period one would only expect firms to switch to a complete financial statement reporting if the increase in proprietary costs resulting from the increased disclosure is offset by the decrease in information asymmetry. After the PE investment the financial expertise, the intensified monitoring and professionalism of the PE investor are likely to be dominant, leading to expectations of a higher disclosure policy when professional PE investors become involved.

Through panel data analyses, we find that PE portfolio firms partly resolve the information asymmetry gap by disclosing significantly more financial statement information than they are

legally obliged to, especially in the pre-PE financing year. These differences remain significant when we control for firm-specific characteristics and potential endogeneity problems. From the PE investment year onwards, PE backed firms are even more likely to disclose complete financial statements compared to both the matched sample and the pre-investment firm-years. This finding suggests a clear governance and professionalization impact of PE investors on their portfolio firms' disclosure behavior. Further, we condition for differences in investor type by splitting our sample in government PE backed and non-government PE backed firms. We expect that the lower monitoring and governance impact which is often associated with government-related PE investors will yield lower disclosure levels for their portfolio firms. Results, however, do not support this view although government PE backed firms switch earlier to a high disclosure strategy. This suggests that the well-documented difference in governance and professionalization between government and non-government PE investors has no sizeable effects on the way financial disclosure of their portfolio firms is enforced.

The current study has several contributions. First, this study distinguishes itself from the traditional disclosure literature which studies governance structures in relation to a firm's disclosure behavior. Prior studies typically associate proxies for a firm's governance structure with aggregate measures of disclosure tendencies (Raffournier (1995), Ho and Wong (2001), Eng and Mak (2003)). However, these studies face the problem of being short of good proxies for a firm's governance structure which often results into mixed results. The firms analyzed in the current study are unique in that they contain an indisputable change in governance system resulting from the PE involvement. This provides an exclusive setting to study the impact of intensified scrutiny and governance pressure on a firm's disclosure behavior. Second, prior studies typically investigate disclosure tendencies of publicly listed companies, primarily driven by data unavailability of unlisted firms. However, recent evidence shows that financial statement information matters for unlisted firms, especially in a PE context, and that this issue is surprisingly neglected in the literature (Hand (2005)). The current study acknowledges this shortcoming and enhances the understanding of the use of disclosure for unlisted firms in response to increased scrutiny and governance by PE investors. Third, most studies analyze disclosure behavior cross-sectionally and typically neglect intertemporal dependencies. However, disclosure decisions are non-random events and cannot be treated independently from a firm's changing environment or economics (Healy and Palepu (2001)). The current

study overcomes this disregard and exploits the characteristics of a longitudinal dataset to analyze the disclosure evolution in a panel data context.

The paper proceeds as follows. Section 3.2 reviews the corporate disclosure literature. In section 3.3, we build hypotheses by combining the PE framework and the disclosure setting. In section 3.4, we describe the research setting, explore the characteristics of the Belgian PE industry and illustrate the sample properties. In section 3.5, detailed statistics are provided and section 3.6 reports the results of our multivariate analyses. Finally, section 3.7 concludes and discusses the results.

3.2 Literature Review

Literature on disclosure, both analytical and empirical, is extensive and typically focuses on the interplay between information asymmetries and disclosure policy. Information asymmetries create costs by introducing adverse selection in transactions between economic agents (Akerlof (1970)). It is commonly accepted that a firm can reduce the level of information asymmetries by committing itself to disclose more information to the outside world. Analytical studies on disclosure policy have been pioneered by Grosman (1981) and Milgrom (1981). These studies find that economic agents are better off by adopting a full disclosure policy since incomplete disclosure results in buyers' suspicion and, as a consequence, high price discounts. Verrecchia (1983) shows why real-life disclosure is often non-complete by introducing proprietary costs, i.e. costs associated with increased levels of disclosure originating from the preparation and presentation efforts and the higher exposure to competitors. Hence, economic agents are typically not willing to disclose all information they hold since this generates proprietary costs. While outsiders do not know to what extent the withheld information represents good or bad news, the value of the firm typically is lowered to a threshold level whereby a manager is motivated to withhold a specified amount of information.

One stream of empirical research focuses on the determinants of a firm's voluntary disclosure decision and the associated economic benefits of increased disclosure. These economic benefits are often valorized by studying the relation between a firm's cost of capital and its disclosure policy. To test this relation, researchers focus on various proxies for a firm's cost of equity capital like bid-ask spreads (Healy, Hutton and Palepu (1999), Leuz and Verrecchia

(2000)), stock liquidity (Botosan and Frost (1998), Leuz and Verrecchia (2000)), share price variability (Leuz and Verrecchia (2000)) and accounting-based valuations (Botosan (1997)). Botosan (1997) finds evidence that greater disclosure is associated with a lower cost of equity capital, but only for firms with low analyst following. Botosan and Frost (1998) find a positive association between stock liquidity and the timeliness of disclosure. Leuz and Verrecchia (2000) show that German firms switching from German GAAP to IAS or US GAAP experience lower bid-ask spreads and higher trading volume but record no improvements with respect to share price variability. Sengupta (1998) analyzes a firm's cost of debt capital in relation to disclosure and finds that firms with timely and clear disclosures are rewarded with a lower cost of borrowing.

Related studies use the context of equity offerings to investigate the interaction between a firm's disclosure policy and its associated cost of capital. Schrand and Verrecchia (2002) study disclosure policies around Initial Public Offerings (IPOs) and find that greater disclosure frequency in the pre-IPO period is associated with lower underpricing. Marquardt and Wiedman (1998) find that prior to a Seasoned Equity Offering (SEO), firms often increase their disclosure level substantially to reduce information asymmetries inherent to the equity offering. Lang and Lundholm (2000) document that a consistently high disclosure strategy leads to a reduction of the information asymmetry inherent in the offering, whereas increased disclosure often is a result of an attempt to "hype the stock".

Other studies focus more explicitly on the governance-related determinants of a firm's disclosure behavior and analyze this behavior in an agency context where principals and agents have different objectives (Jensen and Meckling (1976)). Managerial ownership is seen as an indication of the alignment of interests between principals and agents resulting in studies investigating the relation between a firm's disclosure policy, its ownership structure and the corporate governance system in-place. Ruland, Tung and George (1990) find that ownership structure, measured as the percentage of voting stock owned by officers and directors, is by far the most important variable in explaining a firm's disclosure of earnings forecasts. Forker (1992) reports a positive association between the tightness of a firm's corporate governance system and share option disclosures. Ho and Wong (2001) study Hong Kong listed firms and document that the existence of an audit committee is positively related to the extent of disclosure while the percentage of family members on the board has a negative impact on disclosure. Eng and Mak (2003) study firms listed on the Singapore Stock Exchange and find a positive association between government ownership and voluntary

disclosure, while both the number of outside directors and managerial ownership influence disclosure behavior negatively. However, Raffournier (1995) does not find a specific relation between the disclosure policy of Swiss firms and their ownership structure.

To our knowledge, no prior studies have explicitly considered the PE investment process and the associated disclosure policy of their portfolio companies. Gompers (1995), Lerner (1995) and Kaplan and Strömberg (2002) have studied the monitoring function of PE investors more in general. Others, like Hellmann and Puri (2002) focus on the supportive role of PE and find that PE is related to a number of professionalization measures like human resource policies, the adoption of stock option plans and hiring a marketing vice president. Falconer, Reid and Terry (1995) show that PE investors demand a substantial amount of accounting information in the post-investment period and that accounting profit targets are often used as safeguards in bonding arrangements. None of the aforementioned studies, however, measures to what extent the PE investment process impacts the portfolio firms financial reporting practice. We argue that applying for and receiving PE affects a firm's business environment and study how the disclosure issue is related to this.

3.3 Hypotheses Development

PE is a financing alternative for entrepreneurial firms when traditional financing mechanisms like bank loans and other credits are difficult or even impossible to obtain. As such, PE has developed as an important intermediary in financial markets and is especially appropriate for the financing of firms where large information asymmetries and agency problems are present (Admati and Pfleiderer (1994), Gompers and Lerner (2001)). In this section, we argue how both aforementioned issues are thought to impact the corporate disclosure behavior of portfolio firms in the years around the PE financing.

3.3.1 Disclosure and Pre-Financing Information Asymmetries

Anecdotal evidence and academic studies show that PE investors screen potential entrepreneurial companies extensively before deciding to invest in the company. Selection only takes place when a firm successfully passes an initial screening round and a more thorough due diligence process (Wright and Robbie (1998)). Although there are substantial

differences across firm types, industry and geographic location there is anecdotal evidence that out of 100 proposals that are submitted to a PE investor per year, on average only ten pass the initial screening round and from these ten, only one or two actually receive PE financing (Berlin (1998)).

Various studies have documented that the PE event is often affected by information asymmetries and adverse selection problems, which implements that good entrepreneurs are likely to have an incentive to signal their quality to outside PE investors. One signaling option for entrepreneurs is retaining a substantial equity stake in the venture firm (e.g. Leland and Pyle (1977)). This behavior mitigates the agency conflict by aligning the interests of entrepreneurs and outside investors. Next to signaling criteria, PE investors also ground their investment decisions on viability and novelty of the project, financial profitability, skills and dedication of the entrepreneurial team and possibility for high returns at the exit time (Hall and Hofer (1993), Fried and Hisrich (1994), Wright and Robbie (1998)). It is of paramount importance that entrepreneurs who want to attract PE, try to score sufficiently high on most of these criteria to signal their high quality to potential investors.

Evidence further shows that accounting information is a crucial issue which is required by PE investors before deciding to invest (Manigart et al. (2000), Kaplan and Strömberg (2004)). In general, professional investors rate accounting disclosure as the most important element which impacts their financing decision (McKinsey (2002)). Given that the use of accounting information and its disclosure extent is highly important in screening and selecting investment opportunities, we expect entrepreneurs to give more attention to it when applying for PE. Entrepreneurs can reduce information asymmetries inherent to the PE offering by disclosing more information than legally required to outside stakeholders. From an investor's point of view, a high disclosure strategy is likely to be evaluated positively since this behavior not only indicates a high professionalism with respect to the in-house financial reporting process but also a readiness to disclose information after the PE investment has taken place. We therefore conjecture that high quality firms switch to a higher disclosure level prior the PE investment in an attempt to reduce information asymmetries and to signal their superior quality.

In the line of this reasoning, we hypothesize that a high disclosure strategy will initially facilitate the PE financing search through a reduction of the information asymmetry present in the first steps of the quest for PE. Entrepreneurial research generally agrees that PE investors have access to internal documents which generally contain substantially more information

than the published annual report (e.g. Fried and Hisrich (1994), Wright and Robbie (1998)). At first sight, this would mean that increased disclosure would not have additional value to PE investors, since they have in-depth information which goes beyond the disclosure of financial information. However, we argue that entrepreneurial firms are willing to carry the costs associated with the quality signal of a high disclosure policy to catch the attention of PE investors.²¹ At the time when entrepreneurs start their search for financing, PE investors do not yet possess the detailed information they typically ask for in the due diligence process. Hence, a high disclosure strategy is a valuable tool to reduce initial information asymmetries in the search for PE.

3.3.2 Disclosure and Post-Financing Monitoring

Whereas the pre-investment period is typically dominated by information asymmetries and adverse selection problems, the mutual relationship which arises between the entrepreneur and its PE investor after the PE investment is subject to potential agency conflicts and moral hazard problems. There is substantial evidence that PE investors address agency conflicts by extensive monitoring *ex post*, which typically intensifies the portfolio companies' corporate governance system in-place (e.g. Gompers (1995), Lerner (1995), Robbie and Wright (1998), Gompers and Lerner (2001), Kaplan and Strömberg (2002)). Hellmann and Puri (2002) go beyond this monitoring role of PE and find that PE investors play a supportive role in building the entrepreneurial firm.

In this context, we conjecture that the intensified monitoring and professionalization originating from the PE investor will affect the disclosure policy of portfolio firms. Since PE investors play a role that goes beyond that of traditional financial intermediaries, it is likely that they guide and professionalize the financial reporting process. Since PE investors typically monitor their portfolio companies closely, they may contract deals with their portfolio firms stipulating that the financial reporting should comply with some minimum reporting criteria, like e.g. have a substantial amount of public disclosure. Further, portfolio companies also benefit from the financial expertise and in-house knowledge of the professional PE investor, enabling them to reduce the intrinsic preparation and publication

²¹ In the same line of reasoning, non-PE backed firms have less incentives to disclose complete financial statements and are therefore only expected to fully disclose if they are required to do so by existing (debt) contracts with banks and other important creditors. As in most studies, however, such contracts are unobservable in our context and can only be proxied for by the average leverage of each firm. Further tests take this measure into account in the multivariate analyses (Section 3.6.2).

costs associated with these complete financial reports.²² Thus, professionalization is another factor which is expected to drive disclosure positively. Further, anecdotal and empirical evidence shows that PE investors typically try to exit their portfolio firm after a limited number of years (e.g. Gompers and Lerner (2001)). Given these exit objectives and that PE investors are concerned about the quality of their portfolio firms, PE involvement is believed to go hand in hand with a higher disclosure policy. These arguments suggest that PE backed firms are likely to disclose more information than would be the case without PE involvement. As such, we hypothesize that from the PE investment onwards, PE investors' involvement evokes a higher disclosure policy.²³

3.3.3 Disclosure and Investor Type

Different types of PE investors often generate different types of deals, particularly because both the professionalism of the screening and monitoring activities are determined by investor type (e.g. Lerner (1999), Leleux and Surlemont (2003)). Since a firm's disclosure behavior is likely to be associated with the extent and intensity of its screening and monitoring efforts, one can question whether the disclosure policy of PE portfolio companies is affected by its investor type. Especially, we are interested in disclosure policies of firms backed by government-related PE investors versus non-government-related PE investors.

Managers of government-related PE investment companies are often labeled as civil servants and as such may not have the experience nor the motivation to select or support entrepreneurial companies (Manigart, Baeyens and Van Hyfte (2002), Leleux and Surlemont (2003)). Government-related PE investors' investment decisions are often driven more by a societal goal instead of a profit maximization standpoint (Lerner (1999)). Moreover, government-related PE investors have less pressure to earn a return on their investment, as they do not have to raise new funds from the market and may have other goals than value maximization for their shareholders (Gompers and Lerner (2001)). Further, the absence of performance-related incentive schemes in government-related PE investors create less

²² The costs are of increased disclosure are discussed in Section 3.4.3.

²³ Taking the aforementioned elements into account, we incline towards the argument that PE governance and portfolio firm's disclosure are complements rather than substitutes. Consistent with the complementary argument of intensified corporate governance, we associate a greater extent of disclosure with additional PE monitoring since the adoption of more governance mechanisms strengthens the internal controls in order to minimize opportunistic behavior and information asymmetries (Leftwich, Watts and Zimmerman (1981)). Alternatively, PE monitoring could also be a substitute for voluntary disclosure since higher monitoring influence could reduce the need for other governance mechanisms, such as higher disclosure levels. PE investors, however, are concerned about their perceived quality in the PE industry (Gompers and Lerner (2001)). Provided that PE quality is generally reflected by the quality of their portfolio companies, it is likely that PE investors use their monitoring power to implement a high disclosure policy in their portfolio companies.

incentives to monitor portfolio companies tightly compared to the profit-oriented incentive packages which are more commonly used in non-government PE investment firms (Leleux and Surlemont (2003)).

Provided that government-related PE investors use less stringent screening devices before the PE investment, are weaker monitors *ex post* and have less professional in-house skills to support their portfolio companies, we expect lower disclosure in government-PE backed firms compared to non-government PE backed firms and this both in the pre- and post-investment stage. Prior to the PE investment, firms which focus on attracting government PE and are aware of the lower professionalism and other goals of these government PE firms have less incentives to disclose additional information on top of the regulatory minima.²⁴ From an investor perspective, firms with low disclosure levels may reflect a lower professionalism and/or a lower willingness to share information to outside PE investors making it more difficult for them to raise capital from more stringent and selective non-government PE instances. In the post-investment period, we expect the weaker monitoring activities in-place to result in a lower disclosure policy for government-PE backed firms compared to their non-government PE backed counterparts.²⁵

3.4 Research Setting and Sample Properties

To test the hypotheses, we use a unique hand-collected database containing financial statement information of Belgian companies that received PE financing between 1985 and 1999. This dataset has two major advantages which make it particularly attractive to study the disclosure issue.

First, all Belgian companies (both listed and non-listed) are obliged to deposit their financial statement annually at the National Bank of Belgium in accordance with Belgian Legislation. Hence, this dataset offers the opportunity to study the evolution in the disclosure behavior of unlisted firms which experience a clearly identifiable change in ownership and governance

²⁴ This argumentation, however, implicitly assumes that entrepreneurs focus on one PE investment party at a time instead of 'go shopping' with several investment parties. Anecdotal evidence, however, shows that this is not always the case. Nevertheless, it still is relevant to study potential differences in disclosure behavior prior to the PE investment, dependent upon the specific investor's type that eventually takes up the investment.

²⁵ Our hypothesized relation is opposite to the one developed in Eng and Mak (2003), where the authors suggest and find a positive relation between government intervention and disclosure policy. The main reason why we expect this inverse relation is that we study unlisted firms with a rather small investor base, even after PE participation. Eng and Mak (2003) focus on a substantially different setting and study the disclosure behavior of listed firms leading to these different propositions.

structure resulting from the PE investment. Such a dataset is typically not available in a classical research context like the US where detailed financial statement information of unlisted firms is not retrievable. Therefore, this dataset offers an excellent opportunity to study disclosure behavior of unlisted firms as a response to (i) increased scrutiny by outside PE investors before the investment date and (ii) a changing corporate governance and increased professionalization ex post. Although unlisted firms, on average, experience a lower demand for high quality financial accounting compared to listed firms and are less subject to public scrutiny (e.g. Ball and Shivakumar (2005), Burgstahler et al. (2004)), their disclosure decision may nevertheless be affected by the decision to raise PE financing and the change in governance and professionalization ex post.

Second, the Belgian PE industry differs substantially from that in the US and the UK and even other Continental European countries since approximately half of all PE investments come from government-related PE firms (EVCA, various yearbooks). Hence, our specific dataset on Belgian PE deals may provide useful insights in whether differences in PE investor types and characteristics (i.e. government versus non-government related) affect the disclosure policy of their portfolio firms.

3.4.1 The Belgian PE Industry

Before the 1980s, Europe and the US were two different continents with respect to PE financing patterns. The absence of a supportive entrepreneurial spirit across Europe combined with poor exit alternatives offered by the stock market resulted in a substantial underdevelopment of the European PE industry compared to the US. The Belgian situation was comparable to the one in Europe, where PE only gained importance after the 1980s. Evidence of this juvenile character of the Belgian PE industry is clearly illustrated when comparing the importance of the industry with respect to the size of the economy. During our observation period 1985-1999, average Belgian PE investments totaled 0.06% of GDP. US figures are substantially higher, reaching values of 3 to 4 times that size during the same period (Manigart, Baeyens and Van Hyfte (2002)). Consistent with worldwide tendencies, the Belgian PE industry grew sharply, especially during the late 1990's bubble years to a maximum of 0.22% of GDP in 2000.

During the observation period, the vast majority (58%) of Belgian PE funds was invested in the expansion stage. Seed and start-up investments, replacement capital and buy-outs

accounted for respectively 26%, 9% and 7%. The most popular investment sector was high-tech related (47%), according to EVCA definitions, “*communications, computer and other electronics related, biotech and medical or health related*”. Industrial-related and consumer-related sectors accounted for respectively 17% and 10% of all investments during that period. With respect to investor type, the Belgian PE industry is further characterized by a large number of small independent PE investors and a few large PE investment houses (EVCA, various years). It is noteworthy that more than half of all PE investments made during our observation period come from government-related PE investors. Both the Flemish GIMV (*Gewestelijke InvesteringsMaatschappij voor Vlaanderen*) and the Walloon SRIW (*Société Régionale d’Investissement de Wallonie*) account for a substantial part of these government-related PE investments. Independent and captive investors both account for a mere 25% of total investments.

3.4.2 Reporting Requirements of Belgian Firms

Belgian companies are obliged to file their financial statement annually in compliance with Belgian Legislation. In accordance with the Royal Decree of October 8, 1976, small and medium-sized firms are allowed to report an abbreviated (i.e. less detailed) financial statement whereas large firms are obliged to report a complete (i.e. more detailed) financial statement. One of the main advantages of reporting an abbreviated format is its confined preparation time and the fact that it allows firms to protect potentially sensitive information from public scrutiny. Firms can only opt for the abbreviated format if they do not exceed two or more of the following criteria: (i) annual turnover < 6,250,000 euro, (ii) total assets < 3,125,000 euro and (iii) average number of full time employees < 50. If a firm employs more than 100 full time employees on an annual basis it is automatically classified as a large firm, irrespective of its sales or total assets level.²⁶ However, small or medium-sized firms are free

²⁶ This law is in accordance with the 4th European Directive which defines a Small and Medium-sized Enterprise as a firm that does not exceed two or more of the following criteria: 250 employees, EUR 20 million sales and EUR 10 million total assets. Each European member State is allowed to adopt lower thresholds into their national legislation. Hence, Belgium applies more stringent rules to classify a firm as a large versus small entity. Belgian law also states that if firms belong to a group, the minimum criteria are calculated on a consolidated basis (Royal Decree of October 8, 1976, art. 12, §2). Portfolio companies of PE investment firms, however, are an important exception to this rule since their business areas are too divergent and therefore do not have to be consolidated. Consequently, portfolio companies of PE backed firms still have the possibility to report an abbreviated financial statement if their individual financial statement figures do not exceed the regulatory minima. Note that the aforementioned criteria and amounts are the current minima and evolved over our observation period. Up to 1991, e.g., annual turnover had to be lower than 145 million Belgian Francs (BEF) and total assets should not exceed 70 million BEF. Between 1991 and 1995, the maximum level for annual turnover was 170 million BEF and for total assets 85 million BEF. From 1996 on, turnover and total assets minima were respectively 200 million

to supply more information than legally required by reporting a complete, i.e. more detailed, financial statement on a voluntary basis.

Complete financial statements differ from abbreviated statements in that they provide more detailed information on a number of financial statement items. With respect to the balance sheet, abbreviated formats provide less detail with respect to financial fixed assets, inventory and contracts in progress, investments and long term debt. The income statement also differs substantially since far less detail is provided on operating costs and expenses; these are summarized together with sales in a gross margin. Further, providing details on sales, purchases of raw materials, services and other goods is optional. Finally, accompanying notes to the financial statement are also restricted to a minimum for abbreviated formats.

3.4.3 Disclosure Proxy

The proxy used in the current study to measure a firm's disclosure policy is a self-constructed measure related to the disclosure of financial statement items. Firms which comply with the minimum requirements to file an abbreviated financial statement but which nevertheless decide to disclose a complete financial statement optionally are labeled as high-disclosure firms. The motivation for using this disclosure proxy is that we analyze disclosure behavior of non-US based and unlisted firms. This restricts us from making use of standard disclosure measures like AIMR metrics or management forecasts. The metric used in this study is primarily related to the disclosure of financial statement information since alternative measures for disclosures like analyst meetings, conference calls and other professional venues are not applicable for this sample of unlisted firms. Although financial disclosure captures only one aspect of a firm's total disclosure behavior, we believe that this disclosure metric is relevant for our research context. Financial statements are one of the most important means by which unlisted firms communicate their business and performance to outside stakeholders. Moreover, studying financial accounting disclosure is particularly interesting since evidence shows that accounting disclosure is by far the most important issue for professional investors to ground their investment decision. Finally, other metrics for firm disclosure as well as management forecasts and AIMR disclosure scores have also been criticized in that they are evenly unable to capture a firm's total willingness to disclose and are often biased (e.g. Healy and Palepu (2001)).

BEF and 100 million BEF. Also note that BEF is the former currency of Belgium (before January 1, 2002), with conversion rate: 1 Euro = 40.3399 BEF.

Since abbreviated financial statements contain far less detail than complete financial statements, external parties are better informed about the firm's underlying business activities and the competitive situation of complete financial statement disclosers. As a result, SME firms that are legally allowed to issue an abbreviated financial statement but which, nevertheless, decide to issue a complete financial statement opt to provide a substantial amount of extra information to outside stakeholders. In the vein of Verrecchia's (1983) arguments, we conjecture that firms which report complete financial statements optionally, burden themselves with a substantial proprietary cost since they not only face higher preparation and presentation costs but also because they provide a substantially higher amount of firm details to outsiders which might harm their competitive position. Therefore, SME firms are thought to disclose complete financial statements based on the trade-off between the increase in proprietary costs and the intrinsic benefits inherent to this improved disclosure. Given that firms which are seeking for outside PE financing are typically cash constrained, we expect a higher willingness to disclose additional financial statement information, even if this disclosure is harmful for their competitive position.²⁷

A concern, often overlooked in disclosure studies, is whether the disclosure act is a commitment to a higher disclosure policy rather than an *ad hoc* decision to disclose, which might be reversed if a firm feels the need to do so (Diamond and Verrecchia (1991), Leuz and Verrecchia (2000)). A commitment to a higher disclosure level yields higher economic benefits than a conditional disclosure decision since a consistently high disclosure policy has more information content. A firm's decision to disclose a complete financial statement generates switches in a firm's accounting system but could be reversed at a later time. However, we are convinced that by adopting a more complex and elaborated financial reporting strategy, firms build substantial financial expertise and know-how which is not likely to be reversed. Consequently, we expect and also find that this switch to a higher disclosure strategy causes a change in the firm's financial reporting attitude and professionalism and is a valuable proxy for a firm's disclosure commitment.²⁸

²⁷ To some extent, our study empirically tests an extension of the feedback effect equilibrium model, developed by Bhattacharya and Ritter (1983). These authors develop a model in which asymmetrically informed agents are motivated to communicate their private information to a subset of uninformed agents, but can only do this through channels which convey directly useful information to competitors. Their model is drawn in a setting where firms have high R&D spending and need to raise financing but can only do this by reducing their informational advantage, i.e. by disclosing technological information publicly. In our setting, sample firms also have to decide on the amount of disclosed information which can be useful for competitors (e.g. sales levels, cost structures, etc.). However, the disclosure we measure is entirely financial and does not convey information on any technological advantage.

²⁸ From those firms that switch to a higher disclosure strategy, about 95% stick to this complete financial statement reporting strategy in later years. This finding confirms our argument that a switch to a complete financial reporting is not likely to be reversed in a later stage and is a suitable proxy for a firm's disclosure commitment.

3.5 Data and Descriptives

3.5.1 The Sample

All analyses are run on a hand-collected database with financial and non-financial data of Belgian PE backed companies that received PE financing for the first time in their history over the period 1985 to 1999. Deals were identified by consulting PE investment reports and press releases, while financial statements of the sample firms were retrieved from the financial statement information database of the National Bank of Belgium and 'Belfirst'®, a Bureau Van Dijk database. Next to the financial statements, we identified the PE investor identity and the exact date of the initial PE investment. To be included in this sample, portfolio companies have to be independent firms of which the financial statements are recorded on a regular basis in the database of the National Bank of Belgium. Further, financial and holding companies are excluded because of their highly specific nature and their industry-specific reporting requirements. This selection procedure results in a sample of 556 PE backed firms, representing nearly 40% of all PE investments in Belgium over the observed period.

To provide a basis for comparison, we selected a comparable sample of companies that did not receive PE, a method consistent with related studies in the field. Following Megginson and Weiss (1991), Jain and Kini (1995) and Lerner (1999), each PE backed company is matched as closely as possible with a non-PE backed independent firm on three criteria in the pre-investment year: (i) activity – measured by a four-digit sector code –, (ii) size – proxied by total assets – and (iii) age.²⁹ For firms which received PE funding in the start-up year, the

²⁹ The matching of a PE sample firm with an equivalent non-PE backed firm was performed as follows. First, we retrieved all firms that have their core activities in the same sector of a PE backed firm. As in Teoh et al. (1998a), we start with a four-digit sector (i.e. NACE) code. Out of the retrieved sector peers, we select those firms with total assets not exceeding a 10% total assets range of the PE backed firm. If no match was retrieved in this 10% total assets range, we allowed a 25% (or, if necessary a 50%) difference in total assets. If there was still no match available after tolerating a 50% difference in total assets, we selected all three-digit sector peers and applied the same selection criteria with respect to total assets. This logically yields more sector peers but is at the expense of sector specificity. If necessary, we searched among two-digit sector peers. About 95% of all matched firms are retrieved in at least a three-digit sector specification. From the retrieved sector-peer firms with total assets in the predefined asset range, we selected a firm with its age closest to that of the PE backed firm as its matched firm. This selection procedure yields matched non-PE backed firms that are operative in the same sector, have a relatively similar size and are in comparable life stage. While most studies (e.g. Megginson and Weiss (1991), Jain and Kini (1995)) only match on sector-activity and size, we additionally incorporate age as a matching requirement. This approach is sensible given that a relatively large number of firms receives PE in an early stage of their life cycle and that this a potentially determining factor of a firm's financial reporting professionalism. One can be doubtful that these matching criteria are sufficient to find a proper match for each PE backed firms and that they might be insufficient to make sure that a PE firm and its matched equivalent are indeed proper matches. One potential problem that might arise from this incomplete matching is that our multivariate panel regression results are impacted by a self-selection problem, as mentioned in Heckman (1979). In response to this problem, we run two-stage equation models to capture these treatment effects (Greene, 1997) of which the results are reported in the sensitivity analyses.

matching year was set equal to the first year in which the financial statement data become available, typically being the investment year.

We focus on a sample firms' disclosure policies in the years around the PE financing event. These are the years of interest to study the effect of signaling, increased monitoring and changing professionalization on the portfolio firm's disclosure policy. We therefore focus our analyses on a time window of 3 years before until 5 years after the PE financing year.³⁰ Since not all firms have information available from $(t-3)$, e.g. because they were not operational at that time, and not all firms report information until $(t+5)$ since firms can go bankrupt or merge with another firm, the sample is an unbalanced panel with maximally 9 years of consecutive data for each firm.

To test our hypotheses, we concentrate on those firm-years in which firms comply with the requirements to report an abbreviated financial statement but are nevertheless free to provide a complete financial statement optionally. If a company discloses a complete financial statement although legally an abbreviated format is sufficient, it is labeled as a high disclosure firm since this firm is willing to carry the costs stemming from the increased disclosure in exchange for the alleged economic benefits. Hence, we leave out all firm-years from the initial dataset for which companies exceed the minimum requirements and consequently are legally obliged to report a complete financial statement, since these are not the focus of our research. This results in a substantial reduction in the number of observations in the analysis. E.g. in the year of PE financing, we find that approximately 33% of the initially identified PE firms exceed the legal requirements to report an abbreviated financial statement. Panel A of Table 3.1 shows a breakdown for the PE financing year on the number of available firm-observations in our PE backed and matched sample. Panel B additionally provides descriptive statistics on sample and matched firms' in the PE financing year.

insert Table 3.1 about here

Table 3.1 shows a breakdown of the available firm-observations both for the PE backed and non-PE backed matched sample. We summarize the results of our search in the PE financing year in Panel A. From the initially detected PE backed and matched sample, we have financial

³⁰ Going back to more than three years before the PE financing event results in a substantial reduction in the number of available observations and the incorporation of this extra year is not believed to add any value to the analysis. Moreover, given the average investment period of PE investors, incorporating firm-year observations from more than five years after the PE event substantially increases the risk that PE investors already exited this specific portfolio firm.

statement information of 876 firms (438 PE backed and 438 non-PE backed matched firms).³¹ Missing variables with respect to one or more of the reported minimum criteria limits us to 745 firms for which we can calculate whether a firm is allowed to report an abbreviated financial statement or whether firms are legally obliged to report a complete financial statement. Of these 745 firms, 336 are PE backed and 409 are non-PE backed. For 302 firms (146 PE backed and 156 non-PE backed), firm characteristics exceed two or more of the minimum requirements in the year of interest. Hence, these firms are obliged to report a complete financial statement, leaving 443 firms (190 PE backed and 253 non-PE backed) which are, according to the law, allowed to report an abbreviated format. We focus our analyses on these firm observations since these are the firms that have the option to freely commit to a higher disclosure policy. We have calculated and computed the number of available observations in each firm-year in an identical way, leading to a variable number of observations across all years, in each sample.

Panel B shows that in the year of PE-financing, sample and control firms are on average 9.60 years old, whereas the median age is 6.00 years. Mean (median) total assets are 1,557,752 (1,014,479) EUR. Top three sectors are (1) computer related services (22.3%), (2) wholesale distribution (19.4%) and (3) building services (7.7%). Testing the differences in means (medians) between both the PE backed and the non-PE backed sample shows that in the year of PE financing, both sets are similar with respect to age and sector distribution but that PE backed firms are on average larger than non-PE backed firms.³² Moreover, we find that the mean leverage is 67.6% and does not differ significantly between PE backed and matched firms. By contrast, PE backed firms are less profitable and have relatively more fixed assets at their disposal than non-PE backed matched firms, and this both in a significant way.

3.5.2 Variable Selection

In what follows, we describe the variables used in the analyses and the way they are defined and collated. We identify variables that are related to the PE investment and its associated change in corporate governance next to additional firm-specific determinants of corporate

³¹ Although we identified 556 PE backed firms and an equal number of matched firms, the available number of observations is lower in each year due to the unbalanced characteristics of the sample.

³² Although the initial matching criteria worked well to identify a sample of non-PE backed firms that is comparable to the PE backed sample with respect to age, sector classification and size, the additional conditioning on complete financial statements and the fact that some firms have missing information with respect to the variables of interest causes these differences with respect to the average size in the samples of interest.

disclosures which are often identified in the extant literature. The variable of interest, *HIGHDISC*, is a binary variable taking a value of 1 when a firm discloses a complete financial statement although legally an abbreviated format is sufficient. *PE* is a binary variable taking the value of one if a firm receives PE and is activated both in the pre- and post-investment years. *PE_{post}* is an interaction variable which is equal to one for PE backed firms, but only from the moment the firm receives PE financing and is zero otherwise. This variable measures the additional impact of PE investor's monitoring pressure on the firm's compliance to disclose complete financial statements. *PE_{year-3}* and *PE_{year-2}* are interaction variables used in the multivariate analyses. These variables are activated for PE backed firms three and two years prior to PE financing, respectively. Combinations of the interaction variables *PE*, *PE_{year-3}*, *PE_{year-2}* and *PE_{post}* allows to disentangle the differences in firms' willingness to disclose, both in the pre- and post-investment years, dependent on the incidence of being PE backed. *GOVERNMENT* is a dummy variable that is activated when a PE portfolio firm is backed by a government-related instance. We multiply this variable with *PE* and *PE_{post}* to measure differences in firms' disclosure policy – again both in the pre- and post PE financing period – depending on PE investor type (i.e. government versus non-government related PE investors). All the aforementioned variables allow us to untie the impact of (i) the entrepreneurial attempts to catch potential PE investors' attention by means of increased public disclosure in the pre-financing period and (ii) the monitoring and professionalization effect PE investors have on their portfolio firms' disclosure policy once these have invested.

We further incorporate firm-specific variables, previously identified as determinants of corporate disclosure behavior. *LNAGE* is the natural logarithm of a firm's age and is expected to be negatively related to a firm's decision to disclose (Raffournier (1995), Ho and Wong (2001)) since information asymmetries are typically higher in younger firms and might call for a higher disclosure extent. *LEVERAGE* is defined as (Total Liabilities/Total Assets) and quantifies a firm's solvency situation: a high leverage corresponds to having larger volumes of outstanding liabilities. High leverage levels are expected to substitute the need for additional disclosure since leverage helps controlling the free cash flow problem and the agency costs of debt are typically controlled through restrictive debt covenants rather than increased disclosure of information in annual reports (Jensen (1986)). *FIXASSETS* measures the proportion of a firm's fixed assets to total assets. Consistent with previous studies (Leftwich, Watts and Zimmerman (1981), Ho and Wong (2001)), we expect *FIXASSETS* to

be negatively related to the voluntary disclosure proxy. A higher proportion of fixed assets is associated with less information asymmetry and consequently with a lower risk profile. XORDINC is a dummy variable taking the value of 1 when a firm's extraordinary income is higher than 25% of its current income level. Firms with a high extraordinary component in reported income are associated with more uncertainty calling for a positive association between XORDINC and HIGHDISC. Moreover, extraordinary items often impact the balance sheet and as such might also require a more detailed balance sheet (Chen, DeFond and Park (2002)).³³ Finally, LOSS is a dummy variable taking the value of 1 when a firm reports a loss. Loss-making firms are potentially more risky than profitable firms and are as such potentially more compelled to disclose complete financial statements above the regulatory minima. Table 3.2 summarizes the definition and measurement of all variables used in the analyses and their expected relation with our disclosure variable.³⁴

insert Table 3.2 about here

3.6 Analyses

3.6.1 Univariate Results

Table 3.3 shows a breakdown of the total number of firm observations available in each year around the PE financing event as well as the absolute and relative number of high disclosure firm-year observations. The proportional evolution of high disclosure firms within the PE backed sample and the matched sample is further illustrated in Figure 3.1.

insert Table 3.3 and Figure 3.1 about here

³³ In unreported analyses, we also created dummies which were respectively activated when a firm's extraordinary income is higher than 10% and 50% of current profit levels. All results remain stable with respect to these refinements.

³⁴ Often, disclosure studies also control for a firm's size and proxy this variable by (the natural logarithm of) a firm's market value or by (the natural logarithm of) total assets. However, we do not possess data on the individual firms' market value since we study data of unlisted firms. Moreover, controlling for size by looking at the firm's total assets is inappropriate in this setting given that total assets is one of the three identifiable elements which determine whether or not a firm is obliged to report a complete financial statement (see Section about the disclosure proxy (3.2)). As a consequence, we opt not to incorporate a size variable in our analyses.

The number of available firm-year observations varies between a minimum of 128 (115) and a maximum of 285 (234) in the non-PE backed sample (PE backed sample). The total number of observations increases over time and reaches a maximum two years after the PE financing in both subsamples. This is due to the average age of the analyzed firms: a breakdown of the sample firms' age shows that about one third of the firms are younger than 2 years at the time of PE financing leading to an underrepresentation of firm-years in the pre-PE financing years compared to post-years.

In the non-PE backed sample, the average number of high disclosers remains constant over the observation period, exactly as we expected. On average, 14.9% of all non-PE backed firms disclose more information than legally required. By contrast the mean proportion of high disclosure firms in the PE backed sample is 27.6% and is significantly higher ($\chi^2=5.99$) than the percentage within the non-PE backed sample. For the PE sample firms, the average percentage of high disclosers in the period before the PE financing date differs significantly ($\chi^2=4.41$) from the percentage in the post-financing period: 17.3% versus 31.3%.

The proportional differences per year across both samples show interesting patterns. Whereas the percentage of high disclosures for PE backed firms rises from 15.7% in ($t-3$) over 23.7% in the year of PE financing to a maximum of 36.6% in year ($t+5$), the proportion in the non-PE sample remains fairly stable around its mean level (14.9%). Univariate test statistics show that the average proportion of high disclosers is significantly higher for the PE backed subsample than for the matched sample one year before the PE financing (at the 90% confidence level) and intensifies further from the PE financing year onwards. These univariate results indicate that (i) PE backed firms switch to a higher disclosure level in the pre-PE financing year and (ii) PE investors' involvement further impacts the disclosure policy of their portfolio companies positively. Conditioning the sample for government versus non-government PE backed portfolio firms shows no significant differences, suggesting no systematic impact of investor type on PE investors' disclosure policy at this level.³⁵

However, these findings have to be interpreted with the necessary caution because they do not control for differences in firm characteristics. Table 4 shows descriptive statistics for the variables of interest in our total sample. Panel A reports cross-tables and χ^2 -statistics for high

³⁵ With respect to commitment to a higher disclosure policy, we already mentioned that of those firms that switch to a higher disclosure strategy in the pre-financing years, most firms stick to this high disclosure level. From the 43 firms that were identified reporting a complete financial statement from the pre-financing years onwards, only 3 reverse this high disclosure strategy in a later stage. This provides evidence that the analyzed disclosure strategy is to be interpreted as a persistent commitment to higher disclosure, and hence is expected to lead to higher economic benefits than an occasional switch.

and low disclosure firms differentiating on (i) being PE backed, (ii) reporting a substantial extraordinary income (above 25% of current profit) and (iii) reporting a loss. In contrast to our expectations, high disclosure firm-years are proportionally underrepresented in the sample with high levels of extraordinary income. Differentiating for firms reporting losses versus profits does not yield significantly different patterns between the high and low disclosure subsample.

Panel B provides descriptive statistics on the continuous variables of interest and *t*-test and Mann-Whitney test statistics indicating the difference in means (medians) between high disclosure versus low disclosure firms. Results show that younger firms tend to disclose more, a finding in line with the postulation that younger firms are more risky and as such are more inclined to reduce information asymmetry problems by increased disclosure. Further, high disclosure firms have a significantly lower leverage compared to low disclosure firms, a finding consistent with the Jensen-type (1986) argument. We do not find significant differences in fixed assets between high and low disclosure firms.

Finally, Panel C of Table 3.4 presents Pearson and Spearman correlations between the variable of interest (HIGHDISC) and the continuous explanatory variables. All relations between HIGHDISC and the other variables are in line with the above results. Further, correlations between the independent variables are often significant but fairly small and suggest no collinearity problems in the multivariate analyses.

insert Table 3.4 about here

3.6.2 Disclosure Model and Multivariate Results

In this section, we apply pooled panel logit regressions to examine the dynamic relationship between a firm's disclosure policy, the change in corporate governance and professionalism driven by PE investors' presence, together with other firm-specific characteristics. To digress briefly on this methodology, panel data techniques combine cross-sectional and time-series characteristics in an optimal model and control for individual heterogeneity across firms, collinearity among the variables and firms dynamics over time (Baltagi (2001)). Further, panel data analyses allow to capture firms' economics of adjustment to a specific state – here: disclosure policy – and suffer less from biases resulting from aggregation (Greene (1997),

Baltagi (2001)). Given the binary structure of our dependent variable, a panel logit is the most appropriate method of analysis.

We model a firm's decisions to disclose as a function of receiving PE, both in the pre- and post-financing years, together with other cross-sectional determinants identified in the extant disclosure literature and also described above. Our initial panel logit model has the following form:

$$HIGHDISC_{it} = \alpha + \beta_{1it}.PE + \beta_{2it}.PE_{post} + \gamma_{it}.CONTROL\ VARIABLES + U_{it} \tag{1}$$

We model to what extent a firm's decision to disclose complete financial statements is related to receiving PE financing and condition our analyses for pre-financing years (β_1) and post-financing years ($\beta_1 + \beta_2$). Further, we incorporate control variables which we described above (Table 3.2). Results of this panel logit are reported in the first column of Table 3.5.

insert Table 3.5 about here

Results show clear evidence in line with the findings of the bivariate analyses. In the pre-financing years, PE backed firms have a significantly higher probability of being a high disclosure firm ($\beta_1 = 1.24$). This probability increases strongly from the PE financing year onwards as $\beta_2 = 2.28$, leading to a compound coefficient in the post-PE financing years compared to non-PE backed firm-years of 3.52. These coefficients indicate that, prior to the PE financing, PE backed firms have about 21% higher likelihood of being a high disclosure firm compared to non-PE backed matches, and an additional 46% increase in probability once the PE financing has taken place.³⁶ Further, we find that both younger firms and low-leverage firms have a higher probability of being in the high disclosure sample. Both findings are in

³⁶ This increase in probability is calculated as follows: the initial proportion between high disclosure firms (= firms that report a complete financial statement) and firms that follow the legal requirements (= report an abbreviated format) is $(720/3,494) = 0.206$. The logit coefficient on PE (β_1) = 1.244 and corresponds to an odds ratio of $e^{1.244} = 3.469$. Multiplying the initial proportion 0.206 with this calculated odds ratio conducts a new odds of 0.715. Since the odds is the probability divided by the non-probability, we obtain the following equation: $x/(1-x) = 0.715$ or $x = 0.417$. This means that for each PE backed observation the probability of being in the high disclosure sample = 41.7%. This corresponds to an increase of $(41.7\% - 20.6\%) = 21.1\%$. For the coefficient on PE_{post} , one can perform an identical calculation to estimate the increase in probability.

line with our expectations and the bivariate results. None of the other control variables are significant.

Since we are particularly interested in the difference in disclosure policy between PE backed and non-PE backed firms very close to the PE-financing date, we additionally incorporate two year dummies (PE_{year-3} and PE_{year-2}) in our model. Including these dummies allows to distinguish differences in disclosure behavior between PE backed and non-PE backed firms one year before the PE financing compared to earlier pre-financing years and compared to post-financing years. Model (2) shows this relation:

$$HIGHDISC_{it} = \alpha + \beta_{1it} \cdot PE + \beta_{2it} \cdot PE_{year-3} + \beta_{3it} \cdot PE_{year-2} + \beta_{4it} \cdot PE_{post} + \gamma_{it} \cdot CONTROL VARIABLES + U_{it} \quad (2)$$

The results of the second column of Table 4 show the significantly higher tendency of PE backed firms to report complete financial statements one year prior to the PE financing compared to non-PE backed firms ($\beta_1 = 1.92$). We find no relation between a firm's disclosure policy and being three or two years before its PE financing date: as well ($\beta_1 + \beta_2$) and ($\beta_1 + \beta_3$) are insignificantly different from zero. Further, the additional disclosure effect for PE backed firms in the post-financing years remains high and significant ($\beta_4 = 1.60$). With respect to the control variables, all coefficients and significance levels are similar to those of the first model.

Results of both models provide clear evidence in line with our expectations. PE backed firms switch to a higher disclosure policy in the pre-financing year and we interpret this behavior as an attempt to reduce information asymmetries inherent to this PE application. Moreover, we find multivariate evidence that the likelihood to provide complete financial statements is even higher from the moment PE investors have invested in the portfolio firm. This finding is a clear indication that the intensified corporate governance and increased professionalization resulting from the PE investors' presence has a complementary effect on the supply of the accounting disclosure of their portfolio firms.

In a third model, we sort out differences in disclosure policy by conditioning the data on investor type (government versus non-government PE backed) after controlling for intrinsic company characteristics. To retrieve potential differences between firms backed by different investor types, we extend model (1) by adding two dummy variables. Both interaction variables control for government relations. The first dummy is activated when a firm is

backed by a government-related PE provider, both in the pre- and post-financing period (= Government*PE). The second dummy is activated from the moment a firm receives government-related PE onwards (= Government*PE_{post}), and is zero otherwise. Incorporating these additional dummies allows to disentangle the incremental effects of investor types (government versus non-government related) on their portfolio firm's disclosure policy, conditioning for different sub-periods. Again, we incorporate the same control variables as above:

$$HIGHDISC_{it} = \alpha + \beta_{1it}.PE + \beta_{2it}.PE_{post} + \beta_{3it}.Government*PE + \beta_{4it}.Government*PE_{post} + \gamma_{it}.CONTROL\ VARIABLES + U_{it} \quad (3)$$

Column 3 of Table 5 shows a significantly positive effect on disclosure in the pre-PE financing period within the government PE backed firms ($\beta_3 = 2.75$) which is not present in the non-government PE backed sample. Although this shows that government PE backed firms disclose more in the pre-financing years compared to non-government PE backed firms, the difference in disclosure post PE financing date between both samples is not significantly different from zero. The combined effect of ($\beta_3 + \beta_4$) shows that, after the PE financing date, the total difference in disclosure extent between government and non-government PE backed firms is not significantly different from zero. This suggests that investor type has no overall impact on their portfolio companies' disclosure policy ex post. Hence, these multivariate findings do not corroborate our postulation that a PE portfolio firm's disclosure policy is related to the characteristics of the investor type. By contrast, it suggests that entrepreneurs trace different PE investor parties and do not adjust their disclosure policy in function of the investor type. As such, we find that for this sample of unlisted PE backed firms, the well-documented difference in governance and professionalization between PE investors has no sizeable effects on the way financial statement disclosure of their portfolio companies is enforced.

3.6.3 Sensitivity Analyses

In subsequent sensitivity analyses, we additionally control for elements which could – at least partially – drive our results. Since both the number of observations and some characteristics of PE backed and control firms differ after selection of firm-years where firms are free to

report an abbreviated financial statement could make us concerned about the comparability of these samples. We therefore dealt with this matching issue in more detail and identified a perfect match sample where firm-year observations were only included in the analysis if each firm has a matched observation available for the same firm-year of the control sample. This more stringent matching method has the advantage that there is a matched equivalent available for each PE backed firm in the control sample and gives more confidence about the comparability of the observations across both samples over different firm-years. The analyses were rerun for this perfect matched sample and all patterns and results remain qualitatively equal.³⁷

Additionally, we controlled for the inevitable endogeneity problem that is encountered when comparing PE backed firms with a set of matched firms. Although PE backed firms and their counterparts are matched as closely as possible in the pre-financing year (or the financing year if the company receives PE in the start up year), PE backed firms could still differ substantially from the matched firms due to intrinsic characteristics that are not controlled for in the analysis which might drive our findings. This endogeneity problem is often encountered in disclosure studies and is typically addressed by running two-stage equation models which take into account this kind of self-selection. We run two yearly logits for both the pre-financing and the financing year in which we specify the disclosure policy as a function of being PE backed and the same firm-specific characteristics used in the pooled panel logits. Focusing on these two years is important because these are the years where matching took place, which make them prone to potential uncontrolled selection bias.

In a next step, we estimate two-stage Heckman corrected logit models for these firm-years and compare the regression coefficients. In the two-stage logits, we first model the decision to attract PE as a function of a company's (asset and gross margin) growth, investment intensity, profitability and the total amount of free cash available. The argumentation to control for these additional variables is provided in the extensive literature on differences between PE backed and non-PE backed firms (e.g. Gompers and Lerner (2001), Wright and Robbie (1998)). All the aforementioned variables can differ potentially between the both samples and as such might disturb the findings when we do not control for them. In a second step, these

³⁷ However, since the observations are matched in the (pre-)financing year, obtaining a perfectly matched observation per year is not necessarily our main concern. Differences in growth patterns and financial reporting policy are specific elements which make this dataset particularly attractive to analyze. Eliminating those firm-year observations for which no perfect match is available, inevitably also eliminates a substantial amount of useful information on sample and control firm characteristics and yields a substantially lower number of observations to be used in the analyses. For these reasons, we choose to report the results of the unconditioned samples in our main analyses.

intrinsic differences between PE backed and non-PE backed firms are integrated in our initial estimation model to capture the effect of being PE backed. Results are discussed in more detail in Appendix 3.A and show that controlling for the aforementioned firm characteristics which are not captured by the matching criteria, does not yield different results than for the uncontrolled yearly logits. These findings comfort us that our results are not substantially biased by the endogeneity present in our sample.

3.7 Conclusion and Discussion

Analytical disclosure studies present several arguments why a firm's disclosure policy and its corporate governance system in-place are thought to be related. Empirical studies, however, often show mixed results most likely since both corporate governance and disclosure are measured by noisy proxies. The current study tries to overcome these shortcomings by studying corporate disclosure policies in a specific setting, namely around the private equity (PE) financing event. Studying a firm's disclosure policy in relation to PE financing has the advantage that we do not have to rely on noisy proxies for changes in corporate governance structure since the analyzed firms experience an indisputable and perfectly identifiable change in their corporate environment. As such, this study not only complements accounting research by analyzing determinants of a firm's disclosure policy in relation with a changing corporate governance system in-place but also entrepreneurial finance research since this often treats the corporate reporting environment as exogenous.

More specifically, this study analyzes the disclosure policy of companies financed by PE investors, both before and after the PE investment, and compares it with the disclosure policy of matched non-PE backed firms. The disclosure policy is defined as the choice whether or not to disclose complete financial statements (which contain more details on sales levels and costs structures, amongst others) rather than abbreviated financial statements when possible. Reporting complete financial statements burdens a company with substantial proprietary costs inherent to the increased disclosure, making this a suitable proxy to measure unlisted firms' disclosure behavior. Analyses are run on a unique hand-collected sample of Belgian unlisted, PE backed firms in the years around the PE financing event. The specific legal environment and PE industry characteristics in Belgium make it particularly suitable to conduct this study. All Belgian firms, both listed and unlisted, have to report financial statements. This creates a

possibility to study (1) disclosure decisions in response to information asymmetries associated with the PE event and (2) the impact of changes in ownership structure, corporate governance and professionalization patterns resulting from the PE investment on a firm's disclosure policy even when this firm is not listed on a stock exchange. Moreover, since about half of all PE investments come from public PE investment funds, these data shed more light on the impact of investor type on disclosure policies of portfolio firms. Studying the disclosure behavior longitudinally overcomes the often ignored feature that disclosure depends on a firm's changing environment or economics.

We find evidence that firms switch to a higher disclosure policy one year before they receive PE. This increase in disclosure is interpreted as an entrepreneurial attempt to reduce the information asymmetries inherent to the PE application. The commitment to this high disclosure is further intensified from the PE investment date onwards, suggesting a governance and professionalization impact of PE investors on their portfolio firm's financial reporting behavior. Conditioning the sample on differences in investor type shows that, after the PE financing date, portfolio firms' disclosure behavior does not differ systematically between government PE backed and non-government PE backed firms. However, government PE backed firms do show an earlier switch to a higher disclosure level. This finding might be attributed to a longer search-for-equity period for these firms. Firms that receive government-related PE financing could initially have tried to attract non-government PE investors hereby providing more financial disclosure, but in the end failed to do so. In a later stage, these firms might have to resort to lower quality PE investors, typically being the government-related instances. However, the rather low number of observations prior to the PE finance for the non-government backed firms makes it hard to provide sound proof for this argument and needs to be corroborated by further research. Our results are robust for a number of additional sensitivity checks, including the endogeneity problem present in our sample. In general, the evidence is consistent with the conjecture that there exists a clear link between a firm's disclosure behavior and its changing corporate environment caused by the PE investment.

Our findings might, nevertheless, be subject to some caveats. We do not have specific information on the (stipulations in) contracts between the firms and their PE investors nor with other external parties like banks and creditors. As such, existing (debt) contracts could contain explicit stipulations about financial reporting policies, making the analyzed disclosure behavior less discretionary than a priori assumed. By dissecting these contracts, one could discern more precisely to what extent the increased disclosure is a consequence of the

increased monitoring or rather a pure professionalization outcome. Additionally, the dataset contains only firms that applied for and actually received PE financing. As such, potential control sample firms could be PE applicants that were unable to attract it. We do not see this as a big issue since it could only underestimate our results making the current relations even stronger than they are now. We encourage other researchers to examine other institutional settings and to relate the disclosure behavior to contractual stipulations. This could shed more light on the interrelationship between PE monitoring and professionalization impulses on a portfolio firm's disclosure policy.

These results have important implications for several economic agents that rely on financial statement information of these firms. Increased governance resulting from PE investor involvement and synergies coming from PE in-house skills make portfolio firms more likely to commit to a high disclosure strategy. Further, these results are also important for other stakeholders of PE backed companies like banks, competitors, employees or suppliers that actively make use of PE firm financial statements. PE investors affect the professionalization of their portfolio firms' financial reporting positively in that they contribute to a higher disclosure, making financial statements substantially more informative for external stakeholders.

3.8 Appendix 3.A

Year-Logits and Two-Stage Treatment Logits in Pre-Financing and Financing Year

<i>Dependent Variable = Disclosure (1, 0)</i>	<i>Year₋₁</i>				<i>Year₀</i>			
	<i>Test Logit</i>		<i>Treatment Logit</i>		<i>Test Logit</i>		<i>Treatment Logit</i>	
<i>Variable</i>	<i>Coeff</i>	<i>z</i>	<i>Coeff</i>	<i>z</i>	<i>Coeff</i>	<i>z</i>	<i>Coeff</i>	<i>z</i>
PE	0.574	2.00 [†]	—	—	0.684	2.59 [†]	—	—
LNAGE	0.040	0.20	0.058	0.57	-0.195	-1.18	0.213	1.53
FIXASSETS	-0.501	-0.90	-0.287	-0.86	0.545	1.14	0.668	1.46
LEVERAGE	-0.994	-1.81 [*]	-1.019	-1.85 [*]	-1.025	-2.09 [†]	-0.659	-1.87 [*]
XORDINC	-0.114	-0.28	-0.126	-0.68	-0.691	-1.40	-0.824	-1.20
LOSS	0.149	0.49	0.002	0.02	-0.079	-0.29	0.028	0.13
Constant	-1.194	-1.73 [*]	-0.907	-2.49 [†]	-1.131	-2.05 [†]	-0.765	-1.09
$\rho(\text{Test, Treatment})$			-0.909					-0.06
Wald test of $\rho=0$			2.47					0.04
No. of observations		376		360		442		416
<i>Dependent = PE (1,0)</i>	<i>Selection Logit (Year-1)</i>				<i>Selection Logit (Year0)</i>			
		<i>Coeff</i>	<i>z</i>			<i>Coeff</i>	<i>z</i>	
$\Delta(\text{Total Assets})$		-0.000	-0.01			0.458	3.70 [‡]	
Investments/TA		0.005	0.01			0.907	1.78 [†]	
$\Delta(\text{Gross Margin})$		-0.033	-1.45			0.030	2.84 [‡]	
Accumulated Profit/TA		-1.863	-3.26 [‡]			-2.384	-2.38 [†]	
Cash Reserves/TA		-1.954	-2.08 [†]			-1.794	-2.47 [†]	
Constant		0.103	1.14			-0.265	-2.68 [‡]	

This table presents the results of two yearly cross-sectional logits, one in the pre-financing year ($t-1$) and one in the year of PE financing ($t0$). The dependent variable is a dummy variable taking the value of one if a firm discloses a complete financial statement and zero otherwise. These yearly cross-sectional logit regressions show the relations between the decision to disclose complete financial statements and the propensity of being PE backed together with firm-specific variables in both matching years. Although PE backed firms and their counterparts are matched as closely as possible by size, age and sector industry in the pre-financing year (or the financing year if the company receives PE in the start up year), PE backed firms could still differ substantially from the matched firms due to intrinsic

characteristics that are not controlled for in the uni- and multivariate analyses and might drive our findings.

We address this potential endogeneity problem by additionally running two-equation models which take into account this kind of self-selection. If the correlation between the error terms of the uncorrected logit (Test Logit) and the two-stage logit (Treatment Logit) is low, we can be confident that our uncorrected model is not harmed by potential endogeneity present in the sample. In this two-step Treatment Logit, we first model the PE application as a function of a firm's (i) $\Delta(\text{Total Assets})$: (year-on-year asset growth, relative to last year's assets), (ii) *Investments* intensity (investment in tangible and intangible assets as a percentage of total assets), (iii) $\Delta(\text{Gross margin})$ (= year-on-year change in gross margin, being a proxy for sales levels, as a fraction of last year's gross margin figure), (iv) *Accumulated profits* (profits accumulated into retained earnings, expressed as a fraction of last year's assets) and (v) the extent of *Cash Reserves* (year-end cash situation as a percentage of last year's total assets). These specific variables are used in our selection model, since anecdotal and empirical evidence shows that these variables well capture uncontrolled differences in PE backed and non-PE backed firms. Wright and Robbie (1998) and Gompers and Lerner (2001), amongst others, report that PE backed firms typically have a higher growth pattern and investment (needs), are less profitable and are most often cash constrained.

In a second step, these intrinsic differences between PE backed and non-PE backed firms are integrated in our initial estimation model to capture the effect of being PE backed. Wald χ^2 statistics indicate that both in the pre-financing year and the financing year itself the error terms between the uncorrected (Test) Logit and the Treatment Logit, controlling for endogeneity, are unrelated. This evidence suggests that although self-selection is present in our sample, it is not driving our results substantially. The coefficients of most control variables, however, are rather insignificant. We are not concerned about this finding since we lose a substantial amount of information by running these logits on a yearly basis instead of using the entire panel. The main reason for running these logits is to control for self-selection bias. Note that the number of observations in the Treatment Logits are lower than in the Test Logits due to missing data with respect to the additional variables needed to calculate the Selection Logits. Note that * = significant at the 10% confidence level, † = significant at the 5% confidence level, ‡ = significant at the 1% confidence level.

3.9 References

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3.10 Tables and Figures

TABLE 3.1
Breakdown of Available Observations (Panel A) and Descriptives of Variables of Interest in the PE Financing Year (Panel B)

Panel A ^(a)							
		All	PE backed	Non-PE backed			
Number of firm-observations for which financial statement data are available		876	438	438			
– Firm-observations with missing information on one or more of the criteria		(131)	(102)	(29)			
=		745	336	409			
– Firm-observations which exceed regulatory minima		(302)	(146)	(156)			
= Firm-observations of interest		443	190	253			
Panel B ^(b)							
		Mean	Median	Minimum	Maximum	Stdev.	N
Age	All	9.59	6.00	0.00	91.00	10.9	443
	PE	9.90	6.00	0.00	71.00	10.8	190
	Non-PE	9.36	5.00	0.00	91.00	11.0	253
Total Assets (EUR)							
	All	1,557,752	1,014,479 ^z	24,021	23,472,443	2,107,599	443
	PE	1,884,893	1,346,062	26,549	18,089,262	2,054,792	190
	Non-PE	1,312,073	797,201	24,021	23,472,443	2,117,349	253
Fixed Assets (%)							
	All	37.20 [†]	34.04 ^z	0.00	98.83	27.01	443
	PE	40.23	39.79	0.00	97.46	25.52	190
	Non-PE	34.97	27.23	0.00	98.83	28.01	253
Leverage (%)							
	All	67.64	71.70	0.51	263.42	28.01	443
	PE	68.95	71.83	0.51	263.42	27.98	190
	Non-PE	66.48	71.53	1.32	201.13	28.00	253
Return on Assets (%)							
	All	−0.82 ^z	0.74 ^z	−174.95	109.82	17.43	443
	PE	−4.28	0.19	−174.95	109.82	22.33	190
	Non-PE	1.78	1.52	−63.28	54.21	11.87	253
Top 3 Sectors							
	(1) Computer Services:			22.3 %			
	(2) Wholesale Distribution:			19.4 %			
	(3) Construction Sector:			7.7 %			

^(a) Panel A of Table 3.1 gives a breakdown of the number of available firm-observations both for the PE backed and non-PE backed matched sample in the PE financing year.

^(b) Panel B provides descriptive statistics on some characteristics of our PE backed and matched sample firms, as well as differences in means (medians) between both samples. Age is the number of years since the firm has been set up. Total assets is the absolute amount of total assets outstanding at the fiscal year-end, expressed in Euro (EUR). Fixed Assets is the relative proportion of fixed assets to total assets. Leverage is the proportion of a firm's Total Liabilities to Total Assets. Return on Assets refers to the profitability of the sample firms and equals a firm's fiscal earnings divided by total assets. Top 3 sectors refer to the 2-digit activity codes that are represented most in our sample. Asterisks mean that the means (medians) of the two groups are significantly different using a two-tailed *t*-test (Mann-Whitney U test), *: $p < 0.10$, †: $p < 0.05$, ‡: $p < 0.01$.

TABLE 3.2
Definition, measurement and expected sign of variables of interest ^(a)

Variable	Definition	Measurement	Expected Sign
HIGHDISC	Voluntary Disclosure Dummy	Binary variable, taking the value of 1 when a firm reports a complete financial statement although legally an abbreviated format is sufficient	/
PE	Private Equity Dummy	Dummy variable, taking the value of 1 when a firm is PE backed; this dummy is activated both in the pre- and post-investment years	+
PE _{post}	PE * Post-investment dummy	Dummy variable, taking the value of 1 from the moment a firm is PE backed, 0 otherwise	+
PE _{year-3}	PE * Year-3	Dummy variable, activated three years before the PE financing date	-
PE _{year-2}	PE * Year-2	Dummy variable, activated two years before the PE financing date	-
GOVERNMENT	Government dummy	Interaction variable; captures the effect of investor type on a firm's disclosure policy. 1 = Government Backed, 0 = Non-Government Backed	-
LNAGE	Age variable	Natural logarithm of the number of years since foundation	-
LEVERAGE	Leverage	(Total Liabilities/Total Assets): controls for a firm's debt obligation	-
FIXASSETS	Fixed Assets in Place	Firms' fixed assets as a proportion of total assets	-
XORDINC	Extra-ordinary items dummy	Dummy variable taking the value of 1 when extra-ordinary income exceeds 25% of current profit	+
LOSS	Loss Dummy	Binary variable taking the value of 1 when a firm reports a loss before taxes, zero otherwise	+

^(a) This table gives an overview of all variables of interest analyzed in the univariate and multivariate analyses.

The dependent variable HIGHDISC is analyzed as a function of pre- and post-PE financing variables to capture the willingness of firms that apply for and receive PE financing to disclose a complete financial statement, both in the pre- and post-PE financing years. Additionally, GOVERNMENT is a dummy variable which is activated if the PE investor is a government-related firm. LNAGE is the natural logarithm of a firm's age and controls for uncertainty and information-asymmetry problems. LEVERAGE measures the amount of a firm's Total Liabilities to Total Assets. FIXASSETS is the proportion of Fixed Assets to Total Assets and is expected to be negatively related to a firm's disclosure behavior. Further, XORDINC (a dummy variable activated when a firm reports an extraordinary income above 25% of its current profit) and LOSS (a dummy variable activated when a firm reports a loss) are two additional controls for the inherent risks of a firm.

TABLE 3.3
Evolution of High Disclosure Firms Per Subsample:
([1] Non-PE Backed versus PE Backed and [2] Government versus Non-Government PE Backed) ^(a)

Year	Non-PE backed			PE backed			Government PE backed			χ^2		χ^2	
	N	N	%	N	N	%	N	N	%	PE versus nonPE	GovPE versus Non-GovPE		
	all	Highdisc	Highdisc	all	Highdisc	Highdisc	all	Highdisc	Highdisc				
-3	128	20	15.6%	115	18	15.7%	78	14	17.9%	0.00	0.00	0.72	
-2	146	20	13.7%	143	24	16.8%	94	19	20.2%	0.39	0.39	1.69	
-1	202	27	13.4%	174	35	20.1%	122	23	18.9%	2.21	2.21	0.26	
0	253	33	13.0%	190	45	23.4%	134	28	20.9%	5.87	5.87	0.48	
1	281	42	14.9%	218	66	30.3%	154	44	28.6%	10.83	10.83	0.38	
2	285	42	14.7%	234	76	32.5%	173	56	32.4%	14.37	14.37	0.00	
3	258	43	16.7%	212	70	33.0%	158	51	32.3%	10.35	10.35	0.07	
4	206	33	16.0%	161	54	33.5%	116	41	35.3%	9.34	9.34	0.31	
5	16	27	16.3%	123	45	36.6%	87	34	39.1%	9.07	9.07	0.38	
Sum	1,924	287		1,570	433		1,116	310					
Mean (t-3; t+5)	214	32	14.9%	174	48	27.6%	124	34	27.8%				
Mean (t-3; t-1)	159	22	14.1%	144	26	17.8%	98	19	19.0%				
Mean (t0; t+5)	241	37	15.2%	190	59	31.3%	137	42	30.9%				

^(a) Table 3.3 reports descriptive evolutions (total number as well as relative percentage) of the total number of firm-year observations for respectively the non-PE backed, PE backed subsample and the government-PE backed subsample. In order to test our hypotheses we focus on those firm-years in which firms comply with the regulatory minima to report an abbreviated financial statement. This additional condition yields an unequal number of firm-year observations across both samples. The focus of our analyses is, however, on those firms that meet the minimum requirements and hence have the choice to report a standard (abbreviated) format or a more detailed (complete) financial statement. Imposing this condition on our data leads to an unequal number of firm-year observations in both samples across years since a specific firm might fulfill the requirements to report an abbreviated format in one year although its matched firm does not (or: no longer) meet these minimum requirements. Further, unequal number of observations in the PE backed and non-PE backed sample are also a result of missing data on one or more elements of the financial statement items to calculate the compliance with the minimum criteria. A breakdown of a perfect match sample (i.e. sample for which a firm-year observation in one subsample was only incorporated in the analysis if its matching firm-year observation was also available – *available on request*) shows a similar pattern. We expect a high and surging number of PE backed firms compared to a rather stable number of non-PE backed firms that report complete financial statements around the PE financing event, since no specific event is taking place for the latter firms. Comparing non-government PE backed firms with government PE backed firms, indicates differences within the PE backed

sample, dependent on investor type. For each (sub)sample, the number of firms that report complete financial statements (i.e. commit to a higher level of disclosure than legally required) is shown as a fraction of the total number of available observations. χ^2 test-statistics show differences in high disclosure patterns between (1) the PE backed and non-PE backed subsample and (2) within the PE backed sample, dependent on investor type (i.e. Government PE backed versus Non-Government-PE backed). N_{all} = Total number of observations and $N_{highdisc}$ = number of high disclosure firms. Note that: * = significant at the 10% confidence level, † = significant at the 5% confidence level, ‡ = significant at the 1% confidence level.

TABLE 3.4
Descriptive Statistics for Regression Variables Including Differences in Means and Medians for High Disclosure Firms and Low Disclosure Firms ^(a)

Panel A: Dummy variables						
Variable	Sample	N _{HIGHDISC}	N _{LOWDISC}			
PE	1	433 [†] (27.58%)	1,137 (72.42%)			
	0	287 (14.92%)	1,637 (85.08%)			
XORD INC	1	78 [†] (15.18%)	436 (84.82%)			
	0	642 (21.54%)	2,338 (78.46%)			
LOSS	1	266 (21.61%)	965 (78.39%)			
	0	454 (20.06%)	1,809 (79.94%)			

Panel B: Continuous Variables						
Variable	Sample	N	Mean	Median	Minimum	Maximum
LNAGE	HIGHDISC	720	1.875 [†]	1.792 [†]	0.000	4.317
	LOWDISC	2774	1.939	1.946	0.000	4.554
LEVERAGE	HIGHDISC	720	0.579 [†]	0.610 [†]	0.005	2.634
	LOWDISC	2774	0.689	0.725	0.003	2.425
FIXED ASSETS	HIGHDISC	720	0.392	0.330	0.000	0.990
	LOWDISC	2774	0.369	0.325	0.000	0.991
						0.319
						0.267
						0.412
						0.589

TABLE 3.4 – Continued

Panel C: Correlations				
Variable	HIGHDISC	LNAGE	LEVERAGE	FIXEDASSETS
HIGHDISC	1.000	-0.029 (0.077)	-0.149 (<0.001)	0.033 (0.048)
LNAGE	-0.033 (0.052)	1.000	-0.108 (<0.001)	-0.018 (0.286)
LEVERAGE	-0.149 (<0.001)	-0.110 (0.077)	1.000	-0.120 (<0.001)
FIXED ASSETS	0.002 (0.906)	-0.002 (0.919)	-0.091 (<0.001)	1.000
				-

(a) Panel A reports univariate proportionate differences in disclosure tendency (χ^2 test results) in relation to (1) receiving PE financing (PE), (2) reporting extraordinary income above 25% of current income (XORDINC) and (3) reporting a loss before taxes (LOSS). Panel B provides descriptive statistics for the continuous dependent variables for both the subsample of high disclosure firms (HIGHDISC) and low disclosure firms (LOWDISC). Two-tailed *t*-test statistics (Mann-Whitney U test statistics) have been run to control for differences in means (medians) for both subsamples (HIGHDISC – i.e. firms that report a complete financial statement although legally an abbreviated format is sufficient – versus LOWDISC – i.e. firms that follow minimal legal requirements and hence report an abbreviated financial statement). In Panel C, we provide Pearson (above the diagonal line) and Spearman (under the diagonal line) correlations for the variable of interest, HIGHDISC, and the continuous variables used in our multivariate analyses. Note that * indicates significance at the 10% confidence level, † = at the 5% confidence level, ‡ = at the 1% confidence level.

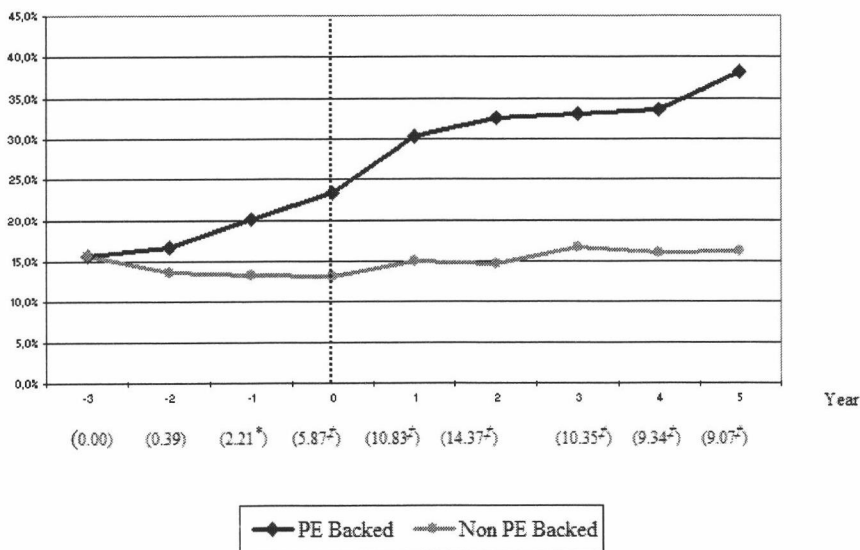
TABLE 3.5
Panel Logit Regressions (Random Effects Model) ^(a)

Model (1):	$HIGHDISC_{it} = \alpha_{it} + \beta_{1it}.PE + \beta_{2it}.PE_{post} + \gamma_{it}.CONTROLS + U_{it}$
Model (2):	$HIGHDISC_{it} = \alpha_{it} + \beta_{1it}.PE + \beta_{2it}.PE_{year-3} + \beta_{3it}.PE_{year-2} + \beta_{4it}.PE_{post} + \gamma_{it}.CONTROLS + U_{it}$
Model (3):	$HIGHDISC_{it} = \alpha + \beta_{1it}.PE + \beta_{2it}.PE_{post} + \beta_{3it}.Government*PE + \beta_{4it}.Government*PE_{post} + \gamma_{it}.CONTROLS + U_{it}$

Variable	Model (1)	Model (2)	Model (3)
PE	1.244 [†] (2.62)	1.916 [‡] (3.91)	-1.165 [*] (-1.91)
PE_{year-3}	/	-1.533 [†] (-2.04)	/
PE_{year-2}	/	-1.348 [*] (-1.94)	/
PE_{post}	2.280 [‡] (6.32)	1.603 [‡] (3.91)	4.432 [‡] (6.69)
GOVERNMENT*PE	/	/	2.752 [‡] (3.70)
GOVERNMENT*PE_{post}	/	/	-2.360 [‡] (-3.12)
LNAGE	-0.420 [†] (-2.27)	-0.427 [†] (-2.45)	-0.346 [†] (-2.00)
FIXASSETS	0.414 (0.95)	0.372 (0.85)	0.354 (0.78)
LEVERAGE	-1.337 [‡] (-3.68)	-1.355 [‡] (-3.75)	-1.602 [‡] (-4.18)
XORDINC	-0.227 (-0.74)	-0.204 (-0.67)	-0.156 (-0.51)
LOSS	0.158 (0.72)	0.184 (0.83)	0.237 (1.07)
Constant	-4.300 [‡] (-8.52)	-4.309 [‡] (-8.72)	-4.339 [‡] (-8.90)
N° of firms	716	716	716
N° of obs.	3,494	3,494	3,494
Wald Chi²	199.45	198.31	189.78
LR test	1,517.37	1,522.77	1,523.04

^(a) This panel logit uses a random effects estimation method for three alternative model specifications. Panel logits techniques combine cross-sectional and time-series characteristics in one optimal model and meanwhile control for individual heterogeneity across firms, collinearity among the variables and firms dynamics over time. For more information on panel logit analyses, we refer to Greene (1997) and Baltagi (2001). We model the disclosure decision of sample and control firms as a function of variables related to receiving PE both in the pre- and post-investment years (Model (1) and (2)) and additionally check for differences between investor types (Model (3)). For a rigorous description of all variables of interest and control variables, we refer to Table 3.2. Note that * indicates significance at the 10% confidence level, [†] = at the 5% confidence level, [‡] = at the 1% confidence level.

FIGURE 3.1
Evolution of High Disclosure Firms Per Subsample (PE Backed versus Non-PE Backed)^(a)



^(a) This figure shows the yearly evolution in the percentage of PE backed versus non-PE backed firms that report a complete financial statement, although legally an abbreviated format is sufficient. Figure 1 shows a visibly higher percentage from $t-1$ for PE backed companies (black line) compared to non-PE backed companies (gray line). This disproportion intensifies strongly after the PE investment year. χ^2 coefficients (reported between brackets below the relative firm-years) indicate statistical differences between the number of PE backed firms and non-PE backed firms that report complete financial statements for each firm-year. Note that ^{*} indicates significance at the 10% confidence level, [†] = at the 5% confidence level, [‡] = at the 1% confidence level.

CHAPTER 4:
BUSINESS GROUPS, TAXES AND EARNINGS
MANAGEMENT

Business Groups, Taxes and Earnings Management [★]

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Abstract

This paper provides evidence that Belgian business group member firms are subject to lower effective tax rates (ETRs) and face a less positive association between pre-tax income and ETRs, compared to independent firms. These findings suggest that firms belonging to a business group apply efficient tax planning across group entities. As a rationalization for this, we hypothesize that Belgian group firms strategically manage firm-level earnings levels in response to tax incentives. We find evidence consistent with this hypothesis, in that group firms manage earnings significantly more downward (respectively: *upward*) when they face positive (respectively: *zero*) marginal tax rates. Moreover, we document that intra-group transactions are important instruments to alter the reported profit level in function of a firm's tax status. Our findings have important implications for a multiple set of stakeholders. Results are robust to alternative model specifications, variable definitions and earnings management measures.

JEL classification: G32, H21, M41

Keywords : Business groups, Effective tax rate, Marginal tax rate, Earnings management

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4.1 Introduction

In this study we examine the effect of group affiliation on tax-motivated earnings management and income shifting among Belgian firms. Although several studies address costs and benefits of business group affiliations and its associated impact on corporate performance, only very few studies directly relate the intrinsic features of business groups to their firm-specific flexibility to manage earnings. This is, however, an important issue to investigate. Through their business affiliates, group firms can rely on extensive networks and internal capital markets to finance their business activities, which makes them less dependent on financial contracts with third parties. Consequently, compared to independently operating firms, group firms are substantially more resilient to manage earnings for reasons other than financial contracting. Additionally, the specific characteristics of business groups provides corporate insiders of affiliated firms with substantial discretionary tools and flexibility to manage the firm-level reported earnings performance from a tax-minimization point of view.

In contrast to the relatively unexplored earnings management research in business groups, there exist a substantial literature on tax minimization in business groups which analyzes income shifting behavior across multiple jurisdictions (e.g. Beatty and Harris (2001), Collins et al. (1998), Jacob (1996), Mills and Newberry (2004), Rego (2003)). In general, results indicate that multinational firms shift income from jurisdictions with high statutory tax rates to jurisdictions with low statutory tax rates to minimize their total tax load. Anecdotal and recent empirical evidence, however, suggests that related business entities operating within the same jurisdiction also capitalize on their group affiliations and shift income between group members to minimize their effective tax rate (e.g. Gramlich et al. (2005), Scholes et al. (2002)). In Belgium, as in the US and most countries worldwide, profitable firms pay taxes while unprofitable firms do not receive synchronized tax rebates. Hence, two or more affiliated firms with a differential tax status can minimize their overall tax load by shifting income from profitable to loss-making entities.

This study is innovative since it is one of the first to analyze differences in tax burdens between group firms and independent firms and, in addition, is able to associate these differences with both group firm's flexibilities to manage earnings at the firm level and to shift income across group affiliates. Prior studies on tax avoidance behavior in business groups typically are unable to analyze these issues jointly, mainly due to data unavailability at the firm-level of group affiliates. Although it is generally believed that group firms have substantially higher incentives and flexibility to manage earnings and to shift income

compared to independent firms (e.g. Banerjee et al. (1997), Beatty and Harris (2001)), the prevalence of this behavior is unclear because of the existence of institutional and legal restrictions. Moreover, the use of group firms' characteristics to manage earnings for tax reasons still remains an unresolved issue.

The current study tries to fill this void and analyzes a unique dataset of Belgian business group member firms. The existence of these business groups in the Belgian institutional environment invites an investigation towards group flexibilities to strategically manage earnings and allocate income across affiliated business entities for tax reasons. The distinctiveness of this research stems from the Belgian financial reporting environment itself which requires both private and publicly listed firms to report individual financial statements, even for group member firms. Moreover, Belgium is one of the rare institutional contexts in which detailed data on ownership structure and group affiliations are publicly available for private as well as public firms. This exceptional richness of firm-level financial statement data allows us to analyze the financial reporting behavior at the individual group firm level. Further, tax incentives to manage earnings are very emphatic in Belgium, because of the close link that exist between financial reporting and tax reporting (e.g. Coppens and Peek (2005), Sercu et al. (2002)). Moreover, Belgian group firms are taxed at the individual firm level and not at the group level, making the group affiliations particularly prone to potential tax avoidance strategies. The combination of these characteristics calls for a rigorous investigation on the inclination of Belgian group firms to report individually reported earnings figures that are optimal from a tax point of view.

Business groups in Belgium are, as in several other Continental European countries, often controlled by so-called *holding* firms. These holding firms are historically grown business entities which typically hold several layers of quoted and non-quoted firms in which the ultimate shareholder controls individual firms through complex and pyramidal structures (Becht et al. (2001), Faccio and Lang (2002)). After the worldwide financial crisis in the early 1930s, the introduction of a banking law prohibited banks to combine their investment and banking activities and indirectly led to the creation of large corporate holding groups. Holding groups are nowadays common practice across several Continental European countries like Belgium, France and Italy and represent a significant proportion of the economy. In Belgium, e.g., listed holding firms account for about 25 per cent of the total market value of all Belgian listed shares and their dominance and corporate global presence is substantial (Becht et al. (2001)). Holdings, and business groups in general, have been studied extensively mainly with respect to value creation and performance (e.g. Buysschaert et al. (2005), Chang and Hong

(2000), Khanna and Palepu (2000)). Until now, only few empirical studies relate business group affiliations to effective tax rates and tax policies in general (e.g. Beatty and Harris (2001), Gramlich et al. (2005), Yetman (2001)). To our knowledge, the current study is the first to examine firm-level and intra-group earnings management activities in response to tax incentives in non-financial business groups.

Our results confirm the hypothesis that, controlling for various firm characteristics, group firms have lower effective tax rates (ETRs) than independent firms. Moreover, we find that group firms have a significantly less positive association between the ETR and pre-tax profitability than independent firms. These findings suggest that firms belonging to a business group apply efficient tax planning across group entities. The evidence is consistent for alternative model specifications and variable definitions. We additionally document that tax-paying group firms apply significantly more downward earnings management to reduce their taxable basis than independent firms. As a compensation at the group level, tax-exempt group firms offset the downward earnings management of tax-paying group members by positive earnings management. The findings suggest that group firms strategically manage earnings in the individual business entities according to their marginal tax rate (MTR) status.

We further document that intra-group transactions of tax paying group firms drive the individual firm's reported results downward while tax exempt group firms have a positive relation between pre-tax results and intra-group transactions. Hence, intra-group transaction accounts are detected as important instruments by which group firms alter the reported profit level in function of a firm's tax status. The overall evidence persists after sensitivity checks for alternative model specifications, variable and earnings management definitions. In summary, the current evidence suggests that group firms capitalize on their business affiliations to lower the overall effective tax rate. Moreover, this research empirically documents that group firms have a higher prevalence to manage earnings for tax reasons than independent firms and, in addition, identifies intra-group transactions as important tax-motivated income shifting mechanisms between affiliated group firms.

Our findings have important implications for various parties. First, the evidence suggests that tax incentives bias the individually reported financial statements of group firms, leading to a misrepresentation for external users. Banks, creditors and suppliers who are not fully considering a group firm's tax situation, its willingness and capability to manage earnings and to shift income are misled by the represented corporate performance. Second, this behavior also results in a foregone tax income for national authorities since group firms incur lower effective taxes compared to independently operating firms. Third, the tax-motivated income

shifts involve a transfer of wealth from one legal entity to another, expropriating the wealth of specific shareholders of some group member firms at the detriment of that of others.

The remainder of the paper is as follows. Section 2 provides in-depth details on business groups and holding structures in the Belgian institutional context. In Section 3, we provide an overview of related literature, formulate our hypotheses on tax-avoiding earnings management in business groups and develop an empirical model on earnings management in relation to tax-avoidance behavior. Section 4 describes the data and variable measurement in detail and is followed in Section 5 by multivariate analyses jointly testing the tax differences and earnings management behavior in business groups compared to independent firms. The final section summarizes and concludes the study.

4.2 Business Groups and Holdings in Belgium

In Belgium, as in many other Continental European countries, financial and industrial business groups represent a substantial proportion of the economy. Business groups are typically owned by a dominant industry-diversified entity that controls a large numbers of affiliated firms. These controlling entities at the top of an industry-diversified business empire are often referred to as holding firms.³⁸ Banerjee et al. (1997) define a holding firm as a professionally managed institution owning a portfolio of stocks in public and private companies, hereby acting as a financial intermediary and an active shareholder. Holding firms are historically grown business groups with several layers of quoted and non-quoted firms, active in a wide range of industries, in which the ultimate shareholder controls individual firms through complex pyramidal structures and interlocking directorates (Becht et al. (2001), Deloof (1998)).³⁹

The origins and the importance of these holding networks should be seen in their historical context. In the early 1830s, large mixed banks were founded to support industrial activities in

³⁸ Although holding is the common name for a business group in Continental Europe, they are also referred to as Gruppo (in Italian) and Konzerns (in German). This different typology is purely linguistic since the aforementioned business groups refer to organizational forms which “actively monitor and control a network of industrial and financial firm entities” (Banerjee et al. (1997)).

³⁹ Holding firms are to some extent similar to Japanese keiretsu firms but do, however, differ from these business conglomerates on three important characteristics. First, while keiretsu member firms are centered around a main bank company which is both a significant shareholder and a creditor to member firms, holding member firms are typically owned by a network of both industrial and financial groupings (e.g. Becht et al. (2001)). Second, holding firms play an active monitoring role in the daily management of the firm they control while keiretsu firms do not have explicitly defined central control. It is common practice that holding firms strictly supervise the firm’s operations, finance and business strategies (e.g. Deloof (1998)). Third, because of their centralized control, holding member firms do not migrate between holding groups portfolios as it is often the case with keiretsu members.

the newly established Belgian federation and to overcome imperfections in the accumulation and allocation of financial capital (Daems (1978)). After the worldwide financial crisis in the early 1930s, the introduction of a banking law forced these mixed banks to separate their investment and banking activities and indirectly led to the creation of large corporate holding groups. Until now, Belgian holding firms are still important investors in financial, industrial and commercial companies. Becht et al. (2001) document that out of all Belgian firms that were listed in the mid 1990s, about 40 per cent were industry-diversified holding firms and their market capitalization represented about 25 per cent of the entire Belgian stock market.

Holding firms previously have been examined with respect to their existence and corporate dominance (Banerjee et al. (1997), Becht et al. (2001)), flexibility of internal capital markets (Deloof, 1998) and corporate performance and value creation (Buysschaert et al. (2005)). Potential rationales for holding firms contain reduction of agency and bankruptcy costs and improved managerial efficiency (Banerjee et al. (1997)). Agency costs may be reduced in holding firm business groups through a better alignment of risk-bearing and control, while overall bankruptcy costs may be reduced by facilitating renegotiations with creditors in distress situations (Banerjee et al. (1997)). Further, holding firms may improve overall managerial efficiency since professional advice and expertise is facilitated through related business parties. Another rationale for holding firm existence is portfolio diversification for individuals since holding firms offer opportunities to invest in a network of industry-diversified firms (Deloof (1998)).

However, an often-cited but unexplored rationale for holding firms is tax avoidance (e.g. Banerjee et al. (1997), Deloof (1998)). Since holding member firms are taxed at the individual firm level they are believed to capitalize on their business affiliations to minimize their firm-level taxable basis. In this paper, we concentrate on the tax consequences of being affiliated to a holding group and relate this to firm-level earnings management and intra-group income shifting. We further elaborate on these issues in the following section.

4.3 Taxes and Earnings Management in Business Groups

Business groups have been of interest in the accounting and finance literature for decades and have been studied with respect to value creation and economic performance (e.g. Banerjee et al. (1997), Buysschaert et al. (2005), Chang and Hong (2000), Khanna and Palepu (2000)). Related studies focus on performance and well-functioning of diversified firms in large US

conglomerates (e.g. Berger and Ofek (1995), Rajan et al. (2000), Shin and Stulz (1998)). However, no empirical studies examine the flexibility of affiliated business groups to manage earnings at the firm-entity level to minimize tax payments. In this section, we link the specific nature of business groups to their higher likelihood of managing earnings and shifting income across affiliates for tax motivations and develop hypotheses with respect to our dataset.

4.3.1 Taxes and business groups

Corporate taxes and firm behavior in response to taxes are typically studied in the framework of Scholes et al. (2002), where tax planning is an outcome of multiple business considerations and perspectives. In general, firms are assumed to aim at tax minimization since this optimizes the available resources for the firm itself and minimizes capital outflow to the government in the form of explicit taxes. Prior studies on tax avoidance in business groups suggest that internationally diversified business groups make use of discrepancies in statutory tax differences and treatments across countries through intra-company transactions to reduce the overall tax rate (e.g. Beatty and Harris (2001), Collins et al. (1998), Jacob (1996), Mills and Newberry (2004), Rego (2003)). These studies look at cross-jurisdictional tax-avoidance activities of US multinational firms and typically find that these multinationals allocate revenues to low-tax countries and expenses to high-tax countries to reduce average tax burdens.

Alternatives for cross-jurisdictional income shifting exist, namely when firms are related through business groups operating in the same jurisdiction and are taxed at the individual firm level (Scholes et al., 2002). Analyses of tax-motivated income shifts between related firms in one jurisdiction even provides a stronger setting since this creates permanent tax avoidance, whereas cross-jurisdictional income shifting might only result in temporary tax savings (Collins et al. (1998)).⁴⁰ Although the benefits of business group income shifting motivated by affiliated firm's tax status are high, empirical studies on this issue within one jurisdiction are relatively rare in the academic field. Yetman (2001) studies tax-motivated expense allocations by US nonprofit organizations and shows that medical and educational nonprofit organizations allocate expenses from their tax-exempt to their taxable activity centers and

⁴⁰ US multinational firms, e.g., can permanently reduce average tax loads by shifting foreign income to US entities if the statutory tax rate abroad is higher than in the US. Conversely, US firms only defer taxes if they shift income from US located business entities to lower-tax foreign tax jurisdictions because of the existence of nonbinding foreign tax credit limitations (Collins et al. (1998)). Hence, depending on the statutory tax rate differences across jurisdictions tax savings are either permanent or temporary.

hereby reduce their overall tax liability.⁴¹ Beatty and Harris (2001) document that the realization of security gains and losses in banks owned by large US bank holding companies is related to tax and financial statement objectives of both the individual bank and the consolidated group. Gramlich et al. (2005) find that Japanese keiretsu member firms face lower effective taxes than independent firms and that this tax reduction is likely to be driven by intra-group income shifts.⁴² These studies suggest that the findings for multinational tax-minimizing income shifting behaviour also apply to related business entities operating within the same jurisdiction and that business group member firms efficiently plan their taxes across business group entities, depending on their marginal tax rate status. The question arises whether the findings of these studies also apply in other institutional and legal environments and if so, to what extent earnings management and intra-group transactions are important tax-avoidance mechanisms.

Business groups have interesting characteristics to study corporate tax-avoidance behavior for two reasons. First, financial contracts with creditors, lenders, customers, suppliers and other stakeholders often use accounting numbers to specify the terms of trade, and hereby lower the individual firm's willingness to report lower income for tax purposes (Shackelford and Shevlin (2001)). However, group membership makes firms less reliant on these external capital providers and hence reduces their incentive to manage reported earnings for financial contracting reasons. Several studies have indeed identified the existence of important internal capital markets at the corporate business group level, leading to less financing constraints for group members (e.g. Chang and Hong (2000), Deloof (1998), Khanna and Palepu (2000)). Consequently, group firms are less dependent on negotiated financial contracts with externals to fund their business activities which mitigates their motives to manage earnings upward for financial reporting costs reasons and provides additional resilience to endeavor tax minimization at the individual firm level.

Second, group affiliations provide member firms with extra flexibility compared to stand-alone entities since they can act in concert to reduce their average tax burden by shifting income from a profitable group member to a loss-making firm. Profitable stand-alone firms,

⁴¹ Although nonprofit organizations are generally exempt from income taxation, they pay taxes on profits from activities that are unrelated to their primary purpose. This tax on unrelated businesses was introduced primarily to prevent unfair competition with for-profit businesses (Yetman, 2001).

⁴² Other evidence of intra-group tax avoidance firm behavior is found in Ferris et al. (2003) who indirectly refer to this behavior by studying the costs and benefits of Korean chaebol firms associations. The authors find that chaebol member firms enjoy lower tax burdens than non-affiliated firms and explain this finding by the coinsurance effect of chaebol groups leading to larger debt capacities of member firms. Ferris et al. (2003), however, do not explicitly control for other firm characteristics that might drive their findings. Gramlich et al. (2005), by contrast, explicitly study tax differences between keiretsu and control firms and take other variables into account to corroborate their findings.

by contrast, lack this specific earnings flexibility and have to revert to other earnings management mechanisms if they aim at tax minimization. Moreover, group membership results in economies of scale for group affiliates, implicitly providing corporate insiders with more experience and discretionary tools to manage the reported earnings performance. We conjecture that group firms exploit their specific flexibilities to focus on and to exercise tax reducing earnings management and income shifting activities, resulting in a lower tax burden for group member firms than for independent firms. This leads to our first hypothesis:

H1: *“Controlling for other firm-specific characteristics, group firms face a lower effective tax rate than independent firms”*

4.3.2 Taxes and pretax profitability

The relation between a firm's pre-tax profitability and its effective tax burden is a widely examined issue in empirical tax research. Until now, however, the evidence on this relation is rather mixed. Wilkie and Limberg (1993) and Gupta and Newberry (1997) find that a firm's profitability is positively related to its ETR.⁴³ Rego (2003) in her study on tax-avoidance activities of US multinational firms, by contrast, builds on a model by Slemrod (2001) who assumes that taxpayers with greater income have lower average and marginal costs of tax avoidance. She finds evidence consistent with this argument since multinational firms with greater pre-tax income have lower worldwide ETRs compared to multinationals with less income (Rego (2003)). Further, Mills et al. (1998) show that typically larger firms have lower average costs of tax planning. Manzon and Plesko (2002) argue that profitable firms have a tax-advantage position relative to less profitable firms since they can benefit more from tax reductions, exemptions and credits, resulting in greater book-tax differences.

Although the expected relation between a firm's reported profitability and the average effective tax rate remains a concern, we follow the reasoning in Gupta and Newberry (1997) and expect, on average, a firm's tax burden to be positively affected by its pre-tax profitability. However, we conjecture that group affiliation allows firms to mitigate the positive association between pre-tax income and ETRs. In line with the arguments of Mills et

⁴³ Wilkie and Limberg (1993) only provide univariate results and do not control for important omitted variable bias problems. Because of the univariate approach the authors use, this study has been criticized and the results are called in question (e.g. Rego, 2003). However, Gupta and Newberry (1997) analyze the ETR issue in a fixed effects panel data estimation framework which not only controls for multiple variables at a time but also overcomes the problem of firm-specific heterogeneity. These authors also find strong evidence that pre-tax income and ETR are positively related (Gupta & Newberry, 1997).

al. (1998), we believe that group firms can benefit from the economies of scale and tax planning investments at the group-level to reduce average tax payments. Further, the flexibility of business groups to manage earnings at the firm-level and to shift income from tax-paying member firms to tax-exempt entities is expected to result in a less positive association between a group firm's pre-tax income and its effective tax rate. This suggests the second hypothesis:

H2: *"Ceteris paribus, group firms have a less positive association between pre-tax income and effective tax rates than independent firms"*

4.3.3 Earnings management and business groups

The accounting and finance literature provides multiple motives for earnings management with capital market and financial contracting motivations being the most widely studied worldwide (e.g. Healy and Wahlen (1999)). Studies on tax-induced earnings management are less common and typically examine a firm's motivation to prefer tax minimization by reporting a lower income above financial reporting incentives to increase book income (Shackelford and Shevlin (2001)). Guenther (1994) shows that firms manage earnings to reduce tax burdens, but that firms with higher leverage ratio's (being a proxy for financial reporting costs) are less willing to report lower income. Lopez et al. (1998) complement Guenther's (1994) results and document that earnings management is highest among tax-aggressive firms. Bartov (1993) finds that, next to financial reporting considerations, tax incentives are important determinants in the timing of asset sales.

The importance of financial contracts and capital market motivations, however, often hampers researchers to show explicit evidence of tax-avoidance behavior on a large scale (Fields et al. (2001)). Business group affiliations can mitigate the importance of financial contracting issues in financial reports considerably, specifically since group membership makes firms less reliant on external capital providers (e.g. Chang and Hong (2000), Deloof (1998), Khanna and Palepu (2000)). Consequently, group firms might be less concerned about their individually reported profitability for financial contracting matters, which potentially enlarges their flexibility to prefer tax minimization above financial reporting considerations. Further, in line with the arguments formulated above, group firms can revert to intra-group income allocations which provides them with extra flexibility compared to independent firms to manage earnings for tax reasons. This combined effect of facing less financial reporting costs

and having an additional earnings management technique at their disposal, makes group firms more prone to optimize their individual financial reporting from a tax perspective than independent firms.

To disentangle a firm's willingness to report an additional unit of income at the expense of paying higher taxes, it is essential to consider a firm's marginal tax rate status. If a firm faces a positive marginal tax rate (i.e. pays positive taxes when earning an additional unit of income), its willingness to report a higher income is likely to be lower if tax motivations are important drivers of the financial reporting behavior.⁴⁴ Consistent with the notion that group firms face less financial reporting costs when reporting a lower result and have more flexibility to tax-adjust their financial reporting, we conjecture that group firms facing a positive marginal tax rate are more likely to manage earnings downward compared to independent firms. To compensate at the group level, group firms with zero marginal tax rates then are likely to counterbalance the earnings management actions of positive MTR member firms, leading to upward managed earnings for these group entities. This leads to our hypothesis 3a:

H3a: *"Group firms facing a positive marginal tax rate status manage earnings significantly more downward than independent firms. Group firms with a zero marginal tax rate status, by contrast, compensate at the group level and manage earnings more upward than independent firms"*

On top of the firm-level earnings management behavior, an often-mentioned tax-avoidance activity for group firms is to shift income across group members operating within the same jurisdiction, based on the marginal tax rate status of both firms (Gramlich et al. (2005), Scholes et al. (2002), Yetman (2001)). These income and cost allocations across affiliated firms are generated through intra-group sales and business transactions which eventually result in firm-level adjusted earnings levels. Intra-group income allocation of this kind offers group firms substantial flexibility to drive the earnings level of each individual group entity in a desired direction, compared to independent firms. In line with the reasoning that group firms are expected to focus more on tax-avoidance because of the lower financial reporting costs they face, group firms' tax status is expected to be a key driver of these intra-group transactions. Consequently, the specific nature and flexibility of group firms to capitalize on

⁴⁴ A more detailed description on the definition of this marginal tax rate status and its implications for an individual firm are discussed in Section 4.4.3.

their intra-group transactions and their higher prevalence to focus on tax-minimization, suggests that group firms use intra-group transactions to alter their individual earnings level in response to their tax status. These arguments imply the following hypotheses:

H3b: *“Group firms use intra-group transactions to adjust individual firms’ earnings in response to their individual marginal tax rate status”*

4.3.4 An empirical model of earnings management and tax avoidance

Earnings management research often conducts test of accruals behavior in relation to underlying cash flow and reported earnings (e.g. Dechow (1994), Dechow et al. (1995), Leuz et al. (2003)). Accruals are accounting adjustments that distinguish reported profit from underlying cash flow levels and have as primary task to reduce noise in operating cash flows (Dechow (1994), Dechow et al. (1998)). Accrual accounting matches costs and revenues in the period that they are realized and hereby reduces fluctuations that would occur on a cash accounting basis. The specific features of accounting accruals have as a natural consequence that operating cash flow and accruals are both contemporaneously and serially negatively correlated (Dechow (1994), Dechow et al. (1998)). However, several studies argue that larger magnitudes of this correlation do not reflect a firm’s underlying economic performance and correspond to earnings management (e.g. Myers and Skinner (1999), Leuz et al. (2003)).

Accruals in itself are not necessarily evidence of earnings management and are therefore typically segregated in discretionary and non-discretionary accruals, where the former component represents evidence of earnings management and the latter component proxies for the shift in accruals driven by a firm’s real underlying business activities (Jones (1991), Dechow et al. (1995)). Hence, where highly negative correlation between total accruals and operating cash flows may partly be the result of changing economic conditions, highly negative correlation between discretionary accruals and operating cash flows suggests earnings management is taking place. We therefore study tax-avoiding earnings management by examining the intensity of the negative correlation between discretionary accruals and operating cash flow levels.

Building on this relation between discretionary accruals, operating cash flow and a firm’s tax situation, we develop a model which controls for tax-avoiding earnings management activities of positive cash flow firms in relation to their marginal tax rate status. Negative cash flow firms are removed from this part of the analysis, since these observations bias the observed

relation tested in model (1) and (2) below.⁴⁵ Given the importance of tax motivations to manage earnings in this Belgian institutional context, we conjecture a more pronounced negative association between discretionary accruals and positive pre-tax operating cash flow if the firm has a positive marginal tax rate status (i.e. is a net tax-payer). To test this relationship, we run the following piece-wise linear relation between discretionary accruals and operating cash flow on all positive cash flow firms in our sample, controlling for a firm's marginal tax rate status:

$$DA_t = \alpha_0 + \beta_1 MTR_t + \beta_2 OCF_t + \beta_3 (MTR_t * OCF_t) + \varepsilon_t, \quad (1)$$

With DA_t = discretionary accruals measured by the proportion of unexpected accruals resulting from a Jones (1991) regression model and MTR_t = a dichotomous variable capturing a firm's marginal tax rate status. This variable is equal to one for firms with estimated positive marginal tax rates and zero otherwise.⁴⁶ OCF_t is a firm's operating cash flow level, computed as earnings before extraordinary items less total accruals. Total accruals are calculated as: $(\Delta Inventory + \Delta Accounts\ Receivable + \Delta Other\ Current\ Assets) - (\Delta Accounts\ Payable + \Delta Other\ Current\ Liabilities) - Depreciation$. Discretionary and total accruals as well as cash flow from operations are deflated by lagged total assets.

This model captures differences in downward-driven earnings management for positive pre-tax cash flow firms relative to a firm's marginal tax rate status. Under the hypothesis that firms are more inclined to manage earnings downward when they are in a net tax paying position, we predict a negative incremental effect for β_3 . Further, because firms are generally found to smooth earnings over time to reduce large fluctuations in reported profits, we expect a combined negative coefficient for $(\beta_2 + \beta_3)$. This corresponds to earnings management behavior intensifying the natural negative relation between total accruals and cash flow and suggests earnings smoothing irrespective of a firm's MTR status. Because firms have, by construction, only positive cash flow levels, this equally suggests evidence of downward-driven earnings management to bring taxable profits closer to zero.

⁴⁵ In this tax-minimizing framework, firms which face negative operating cash flow levels typically do not have to revert to downward earnings management since taxable income will most likely be negative, even without the presence of downward-driven earnings management. Hence, for these firms it is unclear to hypothesize a relation between the cash flow level and a firm's use of discretionary accruals to alter the earnings level in any specific direction. Including these observations in the analysis makes the interpretation of the models less straightforward and potentially blurs the explanatory power of the model.

⁴⁶ Alternatively, we estimated discretionary accruals by applying a Modified Jones (1995) model and an Extended Jones (2003) model which accounts for the non-discretionary proportion of accounts receivable driven by the relation of growth in sales and lagged total accruals (Dechow et al. (2003)). Marginal tax rate status is a binomial variable based on a firm's pre-tax result and the level of carry-forward losses. More details on both measures are provided in Section 4.4.

Although independent firms face similar tax regulations and specifications as group firms and hence are also thought to have tax-reducing earnings management incentives, we conjecture that group firms' characteristics makes them more prone to managing earnings in relation to their tax status and that of group member firms. We therefore extend our model by differentiating between group member firms and independent firms to capture differences in earnings management activities between both samples, and in addition relate the model to their marginal tax rate status. This model goes as follows:

$$DA_t = \alpha_0 + \beta_1 MTR_t + \beta_2 OCF_t + \beta_3 (MTR_t * OCF_t) + \beta_4 Group + \beta_5 (Group * MTR_t) + \beta_6 (Group * OCF_t) + \beta_7 (Group * MTR_t * OCF_t) + \varepsilon_t \quad (2)$$

Given that we expect group firms to apply more earnings management in response to tax motivations than independent firms, we anticipate a significantly negative coefficient for β_7 , as this corresponds with more downward-driven earnings management for group member firms compared to independent firms, given that the firm faces a positive MTR. Assuming that zero MTR group firms offset the downward discretionary accruals of their positive MTR group affiliates, suggests a significantly positive coefficient for β_6 in isolation. We do not predict any specific relation for the combined effect of $(\beta_6 + \beta_7)$. This model is tested in Section 5 to disentangle firms' earnings management activities in response to marginal tax status and group dependency.

4.4 Data description and variable measurement

4.4.1 The sample

The sample employed in this study contains Belgian non-financial and non-utility firms for which a complete financial statement is available during the 5-year period 1997-2001. The data are retrieved from (i) the April 2003 edition of the Belfirst® DVD, a Bureau Van Dijk database, containing financial statement information on all listed and unlisted Belgium firms and (ii) the 2002 annual reports of all listed, industry-diversified Belgian holding firms to identify all Belgian firms affiliated with a listed Belgian holding.

We classify our sample firms in two categories: firms affiliated with a listed Belgian holding firm and independent firms, based on the following procedure. First, we identified all listed holding firms from Euronext Brussels, formerly the Brussels Stock Exchange, and tracked all Belgian firms that are fully or proportionally consolidated with a listed Belgian holding firm in the fiscal year 2001.⁴⁷ If one of these group firms has a consolidated report itself, its Belgian subsidiaries were also incorporated in the sample. Second, we classify firms as independent firms based on the Bureau Van Dijk classification of independent firms (= “*any firm in which recorded shareholders have no more than 24.9% of direct or total ownership*”) and additionally exclude firms classified as independent firms but with non-zero intra-group accounts.⁴⁸

For each firm, we only maintained firm-year observations if (i) the sample firm has a normal legal status in that specific year (i.e. meaning that the firm is operating in a going-concern way and is not involved in any potential restructuring activity like M&As, buy-out or bankruptcy), (ii) the firm is older than one year at time t and if (iii) sales and total assets levels are non-zero in the year of interest and the preceding year. These combined identification criteria resulted in a sample of 1,997 firms (9,306 firm-years) of which 187 (772 firm-years) are identified as group firms and 1,810 firms (8,534 firm-years) come from purely independent firms.

4.4.2 Effective tax rates

To estimate the difference in relative tax burden between group firms and independent firms, we first examine effective tax rates (ETRs). A firm's *ETR* is computed as the actual level of taxes paid divided by the firm's pre-tax book income.⁴⁹ This tax ratio is attractive to use in

⁴⁷ The Belgian Royal Decree on consolidated financial statements and annual reports is based on the 7th European Directive and provides detailed guidelines on (1) companies that should be included in the consolidation, (2) excluded from consolidation and (3) exempted from consolidation. Generally, firms have to provide consolidated financial statements when she directly or indirectly controls one or more subsidiaries.

⁴⁸ This selection criterion is necessary to control for (i) firms in which shareholders have less than 25% ownership but are not operating independently *sensu stricto* and (ii) potential misclassifications of dependent firms as independent firms by Bureau Van Dijk.

⁴⁹ This is the most commonly used definition for a firm's ETR applied in the literature. Rego (1999), however, has raised concern about the effect of income shifting and earnings management that potentially blurs this measure. There are two reasons why we display ETRs as a fraction of pretax income and are not concerned about a potential bias. First, unreported analyses (*available on request*) show that ETRs, expressed as a proportion of operating cash flow, are similar to the findings for ETRs relative to pre-tax profit numbers. Second, we additionally apply tests based on a firm's MTR status which provides evidence on tax-avoidance and is unrelated to the potentially blurred ETR measure. Further, this ETR measure is related to the statutory tax rate applicable during the observation period, being 40.17 per cent. This percentage contains 39 per cent basic taxes on taxable income and 3 per cent supplementary taxes (i.e. $0.03 \times 0.39 = 0.017$), introduced by the Belgian government in 1993 for budgetary reasons. Further, firms with a pre-tax income not exceeding BEF 13,000,000 are subject to a reduced and gradually imposed statutory tax rate of 28 per cent on a pre-tax profit between BEF 0 and BEF 1,000,000; 36 per cent on the pre-tax profit between BEF 1,000,000 and BEF 3,600,000 and 41

that it summarizes the cumulative effect of various tax incentives in one specific statistic (Gupta and Newberry, 1997). ETRs measure a firm's proficiency to reduce its current tax liability relative to its pretax result and hence reflect the relative tax burden across firms (Rego (2003)). Corporate ETRs typically vary across firms and time and have been studied extensively in various tax studies (e.g. Buijink et al. (2002), Gupta and Newberry (1997), Porcano (1986), Rego (2003), Stickney and McGee (1982), Zimmerman (1983)).

Prior research has examined ETRs in relation to a number of firm characteristics like firm size and industry, operational, financial and investment decisions, but this has produced rather mixed conclusions. Under the political cost hypothesis, Zimmerman (1983) expects larger firms to face higher tax costs due to their higher visibility and public scrutiny. His findings on US data show a positive but non-monotonic relation between ETR and firm size. However, Stickney and McGee (1982) conclude that size is not a significant factor for ETR variation while Porcano (1986) observes an inverse relation, the latter providing evidence consistence with the political clout hypothesis.

Wilkie and Limberg (1993) and Gupta and Newberry (1997) analyze the relation between a firm's operations and ETR. Both studies expect and find a positive association between ETR and pre-tax income. Rego (2003) finds a negative association for a sample of US multinational firms and explains this finding in that firms with greater pre-tax income have greater incentives and resources to engage in tax planning. Further, Stickney and McGee (1982) show that a firm's ETR is affected by its capital structure and asset mix, in that financial leverage and capital intensity are negatively related to a firm's ETR. Gupta and Newberry (1997) reach similar conclusions in a panel data study taking firm-specific effects into account. With respect to industry differences, most studies find that ETRs vary considerably across industry sectors (e.g. Crabbe et al. (2004), Gramlich et al. (2005), Gupta and Newberry (1997)).

We control for firm size (*SIZE*) by taking the natural logarithm of total assets level. As in Stickney and McGee (1982) and Gupta and Newberry (1997), we additionally control for a firm's leverage (*LEVERAGE*), measured as (Total Liabilities/Total Assets) and capital intensity (*CAPINT*), measured as (Gross Property, Plant and Equipment/Total Assets); these variables additionally control for a firm's capital structure and asset mix. Finally, we are interested in the relation between a firm's operations and ETR and therefore control for a firm's level of pre-tax income (*PTI*) level (=Pre-Tax Income/Total Assets).

per cent on the pre-tax profit between BEF 3,600,000 and BEF 13,000,000. (Note that BEF = Belgian Francs, the Belgian currency prior to the introduction of the Euro on January 1, 2002. The conversion rate equals EUR 1 = BEF 40.3399).

4.4.3 Marginal tax rate status

Although the majority of studies on tax research focuses on ETRs in isolation, it is recommended to examine a firm's tax costs of earning additional income, especially in the context of earnings management in relation to tax incentives.⁵⁰ This measure is captured by a firm's marginal tax rate (MTR) and is defined as the increase in tax payments as a result of earning one extra currency unit (Scholes et al., 2002). Studies on MTR have been carried out by Graham (1996), Plesko (2003) and Shevlin (1990). MTR identification requires the valuation of a firm's net operating loss deduction through simulations of future earnings streams. Graham (1996) and Plesko (2003) show that simulation results have a very high positive correlation with tax rates based on perfect foresight. However, Plesko (2003) additionally shows that a simple dummy or trichotomous variable based on the presence of net operating losses is highly correlated with a firm's real MTR status.

In this study, we apply the binomial approach to model a firm's MTR status under Belgian tax laws. Generally, Belgian firms can carry forward losses indefinitely while carry backward losses are not allowed (OECD, 2004).⁵¹ Hence, firms are likely to face positive MTRs (i.e. pay positive taxes if pre-tax profit increases) if the firm's pre-tax result is positive and is larger than the total value of carried forward loss, recorded in the financial statement. In contrast, firms with negative pre-tax profits or firms reporting a pre-tax profit that is insufficient to offset the loss carried forward are labeled as zero MTR firms.

4.4.4 Earnings management measure

To empirically verify the model proposed in Section 3.3, we relate a firm's MTR status to the extent of earnings management recorded for that firm. Earnings management itself is measured by the amount of discretionary accruals of sample and control firms. Discretionary accruals are those accounting accruals that do not correspond to a firm's normal business activities and are typically considered to result from earnings management actions (Jones

⁵⁰ Plesko (2003), e.g., acknowledges the misleading effect of analyzing one measure in isolation and suggests a combination of ETR and MTR as alternative tax measures.

⁵¹ Although carry backward of losses are common practice in the US and the UK, most European countries do not allow firms to carry losses backward. Exceptions are France (3 years, with certain limitations) and Germany (2 years). Unlimited carry forward of losses in Europe, next to Belgium, is allowed in Germany, Ireland, Luxembourg, The Netherlands, Sweden and the UK. Prior to 1996, the amount of losses that a Belgian firm could maximally carry forward was limited to 20 million Belgian Francs (= EUR 495,787) or to 50% of the taxable income if this taxable income exceeded 40 million Belgian Francs (= EUR 991,571). During our 5-year observation period (1997 – 2001), no specific changes in tax treatments occurred (OECD, 2004).

(1991), Dechow et al. (1998)). We estimate discretionary accruals in three conventional ways to ensure the accuracy of our earnings management measure. We first estimate discretionary accruals by applying yearly Jones (1991) type cross-sectional OLS regressions for two-digit sector peers. Additionally, we run Modified (1995) Jones regression models on our data and an extended Jones model, as suggested by Dechow et al. (2003).⁵²

4.5 Results

4.5.1 Effective tax rates

Consistent with prior ETR research, we remove all firm-year observations with negative ETRs, because ETRs with negative components do not have an economic interpretation and potentially distort the real ETR findings.⁵³ Also consistent with prior research (e.g. Rego (2003)), we recoded all ETRs greater than one into one to eliminate the effect of extreme values. Finally, we removed observations which were in the top or bottom 1 percent of the pretax income, leverage and size distribution to eliminate the effect of potential outliers. These data adjustments result in a final sample of 7,971 firm-year observations (1,716 firms) of which 639 firm-years (143 firms) come from group firms and 7,332 firm-years (1,573 firms) come from purely independent firms. Table 4.1 presents descriptive statistics of the key variables included in multiple ETR regression models.

insert Table 4.1 here

⁵² In the original Jones (1991) model, nondiscretionary accruals are a linear function of (changes in) firm revenues and the amount of outstanding property, plant and equipment. Discretionary accruals of sample firms are the firm-specific deviation in total accruals from the estimated nondiscretionary accruals. Dechow et al. (1995) slightly modify this Jones (1991) model by removing trade receivables from the firm revenues, justified by the notion that not all trade receivables are purely nondiscretionary. This modified Jones model exhibits significantly higher power in detecting earnings management (Dechow et al. (1995)). Additionally, we also calculated discretionary accruals by controlling our regression model for (1) the proportion of trade receivables that is related to revenue fluctuations since this proportion of receivables is likely to be non-discretionary and (2) lagged total accruals since these tend to be negatively correlated with the level of current accruals and might capture a lot of the variation in the estimated discretionary accruals (Dechow et al. (2003)). Results are very similar for all three estimation methods and do not lead to different conclusions in further multivariate regressions. More information on this discretionary accruals estimation is provided in Appendix 4.A.

⁵³ Previous studies (Gramlich et al. (2005), Rego (2003), Stickney and McGee (1982), Wilkie and Limberg (1993), Zimmerman (1983)) also remove negative ETR firms from the sample for similar reasons. Negative ETRs indicate that either a firm's tax expense or the reported pre-tax profit is negative, but not both. For firms with a negative pre-tax income and a negative tax expense (corresponding to firms receiving a tax rebate), we recoded the ETR to zero, also consistent with previous studies (e.g. Gupta and Newberry, 1997). Unreported results, however, show that only a marginal fraction of firms are in this position and that including or removing them from the analyses does not alter our general findings.

Panel A of Table 4.1 summarizes a detailed description of all variables (respectively mean, median, minimum, maximum, first and last decile and standard deviations) and additionally shows differences in mean (median) values between group firms and independent firms. Panel B reports correlation coefficients between group status and all continuous regression variables. Overall, group firms have a significantly lower ETR than independent firms. Where group firms have a mean (median) ETR of 21.3% (9.6%), mean and median values for independent firms reach 28.6% and 35.6%. Further, group firms are significantly larger than independent firms: mean (median) total assets for group firms are EUR 11,314,767 (EUR 10,875,850) versus EUR 6,137,667 (EUR 5,185,907) for independent firms.⁵⁴ Mean and median leverage of group firms is 59.3% (62.7%), being significantly lower compared to the mean (median) leverage for independent firms (70.4%, respectively 76.5%). These univariate findings on leverage suggest that differences in tax burdens between both sets of firms cannot be attributed to the favorable interest deductions, associated with higher leverage levels. Finally, group firms are more profitable than independent firms, although only with respect to median levels. Within each sample there is wide variation in size, leverage, capital intensity and pre-tax income levels. Minimum and maximum ETR is restricted to 0 and 100% due to data adjustments described above.

The Pearson (Spearman) correlations in Panel B report that leverage is positively related to firm size and negative to pre-tax income. This positive association between firm size and leverage is as expected since empirical findings often show that larger firms face less financing constraints than smaller firms (Berger and Udell (1998)). The negative association between pre-tax income and leverage is consistent with findings in other institutional settings, although its magnitude is fairly high.⁵⁵ Larger firms have a higher capital intensity although, surprisingly, have a lower profitability.

⁵⁴ The substantial difference in size might raise concern about the comparability of both group and independent firms. In unreported analyses (*available upon request*), we performed detailed descriptive analyses of potential confounding size effects which might potentially drive the differences in ETR. We ranked all sample firms in ascending order, based on ETR levels, and grouped them into 10 deciles. Within each of these 10 deciles, we compute the mean and median ETR as well as size (measured by total sales) of both our group and independent firms. Firm size differentials are statistically insignificant in each of the deciles with exception of the 10th decile where group firms are significantly larger than independent firms. In most deciles, mean (median) ETRs of group firms are significantly smaller than independent firms. To additionally ensure that differences in ETRs between group and independent firms are also measured without the minimum possible confounding effect of industry, we performed additional tests relating to the average ETR across industries. Results indicate that ETRs vary across industries, a finding consistent with Crabbe et al. (2005) in their study on average ETRs in Belgium. Moreover, group firms exhibit significantly lower ETRs than independent firms within each industry, except for the industry with the lowest average ETR, being the Services industry. These results indicate that group firms tax advantage cannot be explained by firm size nor industry membership, suggesting that other elements drive the observed phenomenon.

⁵⁵ Gramlich et al. (2005) reach similar values for Japanese firms where Spearman correlations between leverage and profitability measures are up to -0.360. Consistent with the arguments in Gramlich et al. (2005), we suggest that this rather

To examine the results in a multivariate framework, we employ an OLS multiple regression model to examine (i) the difference in ETR of group firms and independent firms and (ii) the differential relation between firm profitability and ETR, relative on group dependence.⁵⁶ The model applied to study these effects is as follows:

$$\begin{aligned} \text{ETR} = & \alpha_0 + \beta_1 \text{SIZE}_{it} + \beta_2 \text{LEVERAGE}_{it} + \beta_3 \text{CAPINT}_{it} + \beta_4 \text{PTI}_{it} + \beta_5 \text{GROUP}_{it} \\ & + \beta_6 (\text{GROUP} * \text{PTI})_{it} + \sum_{j=7}^{16} \beta_{jt} \text{IND}_{jt} + \sum_{k=17}^{20} \beta_{kt} \text{YEAR}_{kt} + \varepsilon_{it} . \end{aligned} \quad (3)$$

with the variables *SIZE*, *LEVERAGE*, *CAPINT* and *PTI* measured as described above. *GROUP* is a dummy variable equal to one for group firms while *GROUP*PTI* is the interaction effect of the group affiliation dummy with a firm's pretax income level. *IND* is a vector of dummy variables for each one-digit industry sector the firm is operating in. *YEAR* is a vector of dummy variables capturing the year effects, from 1997 to 2001. Consistent with our first hypothesis, we expect a significantly negative coefficient for β_5 as this corresponds to a lower ETR level for group firms after controlling for other firm characteristics like size, leverage, capital intensity and pre-tax income. Moreover, a significantly negative coefficient on β_6 provides evidence in line with our second hypothesis, suggesting a less positive association between pre-tax profitability and ETRs for group firms.

insert Table 4.2 here

We present the regression results in Table 4.2. The first column displays results of the ETR regression with control variables only, the second column includes a dummy for group affiliation and the third column includes group affiliation and group interaction with pre-tax profitability. The relatively high adjusted R^2 and highly significant F-statistics indicate the model provides strong explanations of the variation in ETRs. The third column of Table 4.2 shows that after controlling for industry, year effects and variables relating to size, operational, financial and investment decisions, ETRs are significantly lower for group firms

high negative correlation might be caused by Belgian lenders who are less concerned (or are less successful in predicting) the future profitability of their borrowers.

⁵⁶ As described in Section 4.5.1, data specifications on ETR limit its value to [0,1]. However, OLS estimations can give fitted values that are negative and values greater than one. As a robustness check, we therefore performed a logit transformation on the ETR measure and reran the regression, leading to similar conclusions.

than for independent firms. The dummy variable for group membership has a significant coefficient of -0.072 and suggests that group firms have a 7.2% lower ETR to start from. The significantly negative coefficient on the interaction term ($Group*PTI$) further shows that group firms experience a significantly less positive association between pre-tax income levels than independent firms. Both findings provide clear evidence in line with our hypotheses (1) and (2). Further, we find all our control variables to be significantly associated with the ETR levels in a way that is consistent with global findings on ETR and firm characteristics. Larger firms experience higher ETRs, while highly levered and capital intensive firms face lower ETR levels. In contrast to group firms, independent firms face a significantly higher positive association between reported pre-tax profitability and effective tax burdens.

4.5.2 Marginal tax rate status and earnings management

The results in Table 4.2 demonstrate that group firms have a lower tax burden than independent firms and also suggests that group firms are more able to combine high pre-tax profitability with relatively low ETR levels. The evidence based on the ETR measures in isolation, however, does not allow to differentiate on tax avoiding earnings management behavior of group and independent firms. Therefore, we additionally investigate evidence of earnings management based on the model proposed in Section 4.3.4. Given that the model is only unequivocally interpretable when applied to firms with positive pre-tax operating cash flows, the number of firm-years examined in this section reduces from the number in the ETR analyses (being 7,971) to a total of 5,763 (representing 1,956 firms).⁵⁷

 insert Table 4.3 here

Table 4.3 reports distributional properties of discretionary accruals, operating cash flows and other continuous regression variables of interest across the binomial variables, being MTR-

⁵⁷ Ball and Shivakumar (2005) report that for a sample of unlisted UK firms, 15% of the analyzed firms have negative operating cash flow levels. The proportion in our sample is larger (being 27.7%) and we explain this larger proportion in three ways. First, the average size of the firms in Ball & Shivakumar (2005) is somewhat larger than the average size of the firms in our analysis. Moreover, age differences might also be present. Since both young and smaller firms are typically less capable in realizing positive cash flow, this might drive the relatively higher proportion of negative cash flow firms in our sample. Second, Ball and Shivakumar (2005) analyze a substantially larger number of firms and hereby are able to capture average trends of the entire economy. Third, Ball and Shivakumar's (2005) observation period ends in 1999 while ours proceeds until end 2001. Following the overall economic downward trend in 2000 and 2001 our sample firms might have recorded most negative operating cash flows during these years. Unreported diagnostics show that this is indeed the case as negative cash flows appear substantially more towards the final years of the analyses.

status (1 = positive MTR; 0 = zero MTR) and group membership (1 = group member firm; 0 = independent firm). Findings based on these distributional characteristics provide some tentative notion on the relationship between all variables, dependent on being tax-exempt or not, on being a group member firm or not and on the interaction between both. Mean discretionary accruals are somewhat lower for firms with a positive MTR-status, irrespective of the group membership status. However, when group firms are subject to taxation ($MTR=1$), discretionary accruals can reach very low values, suggesting downward earnings management activities to reduce taxable basis. Moreover, the rightly-skewed distribution observed for group firms with zero marginal tax rates ($MTR=0$) designates the opposite pattern of potentially upward biased discretionary accruals. With respect to leverage, differences across the categorical variables are highest for positive MTR group firms (mean leverage = 52.4%) and zero MTR independent firms (mean leverage = 75.9%). Further, distributions are fairly similar across the different sub-samples. One exception is the substantially higher mean profitability (pre-tax income) values for firms facing a positive MTR.⁵⁸ This suggests the need to control for firm profitability in our multivariate analyses.

To elaborate further on the relation between earnings management, marginal tax rate status and group membership, we run an OLS regression based on the model developed in Section 4.3.4, supplemented with control variables. We add variables to control for *LEVERAGE* (Total Liabilities/Total Assets), *SIZE* (Natural logarithm of Total Assets) and *PRE-TAX INCOME* (Pre-tax Profit/Total Assets) to the model, to control for firm-specific effects which potentially drive the differences in earnings management activity partly.⁵⁹ The full model employed goes as follows:

$$DA_{it} = \alpha_0 + \beta_1 MTR_{it} + \beta_2 OCF_{it} + \beta_3 (MTR * OCF)_{it} + \beta_4 Group_{it} + \beta_5 (Group * MTR)_{it} + \beta_6 (Group * OCF)_{it} + \beta_7 (Group * MTR * OCF)_{it} + \sum_{j=8}^{10} \beta_j Control_{jt} + \varepsilon_{it} \quad (4)$$

Results are displayed in Table 4.4. Column 1 shows results of the model applied on the entire sample, without differentiating between group and independent firms. The second column

⁵⁸ This finding is not surprising and is a logical consequence of a firm's MTR status. Firms with a positive MTR status have a positive pre-tax result being larger than any potential carry forward loss recorded in the financial statements. Gramlich et al. (2005) reach similar conclusions with respect to their Japanese keiretsu firms: whereas positive MTR firms on average realize a pre-tax return on firm value of more than 2%, zero MTR firms face negative profitability levels on average.

⁵⁹ See e.g. Zimmerman (1983) for a description on firm size and earnings management, Guenther (1994) for the relation between leverage and earnings management and Dechow et al. (1995) or Kothari et al. (2005) for differences in firm profitability and earnings management.

provides results for the full model as displayed above, hereby differentiating on MTR-status and group membership.

insert Table 4.4 here

Results for the model differentiating on MTR status across sample and control firms (second column) demonstrate that, on average, firms with positive operating cash flows reduce their taxable basis by employing large negative discretionary accruals ($\beta_2 + \beta_3 = -0.80$).⁶⁰ The coefficient on β_3 , measuring the extra earnings-reducing effect of discretionary accruals for firms with a positive MTR status is negative, but not significantly different from zero. Hence, full sample results suggest that, on average, the analyzed firms smooth earnings and that firms facing positive tax burdens do not have a higher propensity to employ discretionary accruals to reduce their taxable basis.

When differentiating the results for group membership in regression (5), we find that independent firms use discretionary accruals to reduce operating cash flows since ($\beta_2 + \beta_3$) is -0.79 and significantly negative. Moreover, in line with the findings for the full sample, independent firms do not use discretionary accruals more aggressively when they have a positive MTR status, since β_3 in isolation equals 0.01 and insignificantly different from zero. Stated alternatively, this evidence suggests that independent firms smooth their operating cash flow to report more stable earnings over time, but that this smoothing behavior is not primarily tax-driven. Further, discretionary accruals are also negatively related to a firm's operating cash flow for group member firms, although not significantly different from independent firms. This effect is captured by the combined coefficient of ($\beta_2 + \beta_3 + \beta_6 + \beta_7$), being -0.84 .

Interestingly, the significantly negative coefficient of -0.43 for β_7 in isolation clearly shows the differential use of discretionary accruals across independent and group firms, both facing positive MTR. Group member firms better fine tune the use of discretionary accruals to compensate high operating cash flows when they are subject to positive MTR rates. The coefficient on β_6 of 0.39 is consistent with this picture and suggests that group firms use less

⁶⁰ In Appendix 4.B, we provide a detailed description on the interpretation and significance levels of the combined coefficients, both for the models with and without group dependency. For reasons of fluency, we do not provide extensive detail on these calculations and their associated significance levels in this result description section.

negative discretionary accruals to compensate high positive operational cash flow levels than independent firms, when they face zero MTR levels. Hence, although the combined effect of $(\beta_6 + \beta_7)$ does not indicate a differential use of discretionary accruals to compensate cash flow levels between group and independent firms, the individual effects of β_6 and β_7 in isolation show that MTR status is an important driver for group firms' earnings management activities. In summary, these findings clearly demonstrate that strategic earnings management activities within group firms are primarily driven by tax motivations.⁶¹

4.5.3 Intra-group transaction accounts

We conduct a test to identify shifts in intra-group transaction accounts which might explain the highly tax-motivated earnings management actions identified within group firms. Although the findings above clearly suggest tax-motivated earnings management for group member firms, we do not know whether this earnings management is facilitated and/or driven by the intra-group affiliations. To disentangle this issue, we examine the changes in group firms' intra-group receivables and intra-group payables, since these are potentially the most obvious and flexible instruments to optimally balance the firm-specific earnings level of each group member. Belgian law specifies that firms have to specify intra-group receivables and payables separately in the notes accompanying the financial statement. Intra-group receivables and payables are recorded in the accompanying notes of the financial statements and retrievable under Code 931 and Code 937, respectively.

Although intra-group receivables mainly consist of trade receivables, intra-group payables can be both trade payables and payables referring to intra-group financial debt, since the latter is summarized in one figure and is not disclosed separately in the accompanying notes. Hence, we cannot think of these intra-group transaction accounts as purely working capital accruals since a measure which unambiguously detects intra-group payables that are related to business transactions and to financial transactions is not provided in the financial statements. However, even if this measure mixes both intra-group capital shifts that are related to trade activity and intra-group loans, it provides an indication of the intra-group transactions which ultimately drive the individual firm's taxable result.

⁶¹ With respect to the control variables, we find that larger firms have lower earnings management levels, consistent with the political cost hypothesis (Zimmerman (1983)). Further, highly levered firms use less earnings management and discretionary accruals are positively related to a firm's profitability.

Although not all intra-group receivables and payables are discretionary, we conjecture that the flexibility to adjust these intra-group transaction accounts to levels which optimize the overall strategy is substantial and might be driven by tax avoidance strategies. Hence, we measure the change in a group firm's intra-group receivables (*Code 931*) and intra-group payables (*Code 937*) and relate this to the firm-specific pre-tax reported result, again differentiating on MTR status. Consistent with a tax-avoiding intra-group transaction perspective, positive MTR group firms are likely to report income-decreasing intra-group transactions while zero MTR group firms can thrive on their tax shields to record income-increasing intra-group transactions. The following model is applied on the sample of group firms only and tests the hypothesis that group member firms' intra-group transaction accounts contribute to the tax-motivated earnings management:

$$PTI_{it} = \alpha_0 + \beta_1 MTR_{it} + \beta_2 (\Delta IntragroupAccounts)_{it} + \beta_3 (MTR * \Delta IntragroupAccounts)_{it} + \epsilon_{it} \quad (5)$$

Where PTI corresponds to the group firm's pre-tax reported income (Pre-tax income/Total Assets) and MTR is a dummy variable capturing a firm's marginal tax rate status (1 if the firm faces positive marginal tax rates, zero otherwise). Further, $\Delta IntragroupAccounts$ is the firm-specific measure of shifts in intra-group transactions and is computed as the year-on-year change in intra-group receivables minus the year-on-year change in intra-group payables, both expressed as a percentage of lagged total assets. $MTR * \Delta IntragroupAccounts$ is the interaction term of MTR status and $\Delta IntragroupAccounts$ and controls for the differential relation between a group firm's reported pre-tax income and the corresponding change in intra-group transactions, given its positive MTR status. Consistent with our hypothesis 3b, we expect a significantly negative coefficient on β_3 as this would imply that group firms faced with positive MTR levels apply more downward oriented intra-group transaction account shifts (i.e. more payables are allocated to this firm entity compared to receivables) to ultimately reduce taxable profit figures. Conversely, if group firms face a zero MTR, the specific group flexibility to allocate income components to these group entities, suggests a positive coefficient on β_2 . Observing a differential pattern between firm profitability and changes in intra-group transaction accounts across MTR status, suggests that group firms capitalize on tax shields of affiliated firms to reduce their average tax burden.

insert Table 4.5 here

Results are displayed in table 4.5 and suggest evidence in line with our hypothesis. Although regression (6) in column 1 shows that, on average, changes in intra-group transactions are positively related to a group firm's pre-tax income, we retrieve an interesting finding when conditioning our sample for MTR status of the group member firms. Regression (7) in column 2 depicts that group firms with a positive MTR status employ significantly more intra-group transactions with a downward effect on their individual taxable result as β_3 is -0.07 . For zero MTR group firms, this relation is significantly positive ($\beta_2 = 0.09$). Both findings are consistent with the reasoning above and suggest that tax-exempt group firms capitalize on their tax shields to reduce the average tax burden of affiliated firms by balancing the level of intra-group accounts relative to their MTR status. Although the combined effect of these intra-group transaction shifts is not noticeable on average, the findings in regression (7) do indicate that they are partly driven by tax-motivated intra-group transactions to reduce the average taxable basis.

To address the issue that changes in intra-group accounts are potentially largely driven by payables that are not related to trade activities but are mainly changes in intra-group financial liabilities, we additionally run an OLS regression where we split up the change in the calculated intra-group transaction variable into (1) the change in intra-group receivables and (2) the change in intra-group payables to measure the impact of receivables and payables separately. We further additionally incorporated the interaction effect of (1) and (2) with the firm's MTR-status. Our findings in regression (8) show that the results captured in the combined intra-group accruals measure persists in the individual measures and have the predicted sign, although the coefficient capturing the incremental effect of receivables on pre-tax profit for positive MTR firms becomes insignificant.

4.5.4 Sensitivity checks

We performed a number of sensitivity checks to further corroborate our findings and, in general, results are robust to these additional checks and controls. First, we added additional control variables to the OLS regression model in (3) to measure a firm's average tax burden. Following Gupta and Newberry (1997), we incorporated R&D intensity (measured as R&D

expenses/Total Sales) and inventory intensity (measured as Inventory/Total Assets). R&D intensity is included to capture the tax benefits resulting from the tax-deductibility of R&D expenses (Gupta and Newberry (1997)). Inventory intensity is, unlike R&D or capital intensity, not likely to be associated with substantial tax benefits and suggests higher tax rates for inventory intensive firms (Gupta and Newberry (1997)). Adding these additional control variables to our regression model (3) does not alter our results nor does it affect the explanatory power of the model employed.

Second, we additionally controlled for the level of long-term investments that firms have in other firms. Corporate revenues originating from investments held in third companies are taxable at the receiving firm's level. However, if these revenues are appropriated through dividends, the tax rate is reduced to 95% of the statutory tax rate if a number of investment conditions are realized. This tax exemption might have substantial impact on the average tax burdens of firms with a large number of investments in affiliated firms that receive income through intra-company dividends. Since our group firms are interrelated through a complex structure of pyramidal crossholdings, they are likely to have a higher propensity to have (part of) their pre-tax results exempted from the normal tax regime. As such, the findings that holding member firms have a significantly lower ETR might be attributed to their higher propensity to have investments in affiliated firms and its associated reduction in fiscally taxable profit caused by this so-called permanently taxable income. Unreported results (*available upon request*) show that group firms indeed hold significantly more investments in third parties that meet the investment criteria, and hence are subject to the reduced tax rate. Incorporating this variable as an additional regressor in regression (3), however, does not alter the regression results on all other explanatory variables comforting us that this special tax treaty does not drive the ETR results.

Third, with respect to the earnings management association measure, we calculated discretionary accruals in three different ways. Next to the Jones (1991) and Modified Jones (1995) estimation results, we also estimated the extent of nondiscretionary accruals by applying a model which (1) additionally controls for the proportion of trade receivables that is related to revenue fluctuations (Dechow et al. (2003)) and (2) controls for the amount of lagged total accruals since these tend to be negatively correlated with the level of current accruals and potentially captures a lot of the variation in the estimated nondiscretionary accruals (Dechow et al. (2003)). All three earnings management proxies are highly correlated, yield very similar discretionary accruals results and do not lead to different conclusions in

further multivariate regressions. Appendix 4.A provides a detailed description of the discretionary accruals estimation procedure.

Finally, since our dataset contains cross-sectional time-series data and it is well known that panel data estimations have several advantages across cross-sectional estimation methods in this context, we additionally ran panel data estimations on our sample. Gupta and Newberry (1997) recommend this estimation method with respect to tax research as it overcomes the problem that *“cross-section time-series models might be biased and inconsistent...[if] the unobserved firm-specific characteristics are correlated with the explanatory variables”* (Gupta and Newberry (1997), p. 15). Analyzing our model in a panel data regression framework does not alter our general findings and provides evidence in line with those reported in the analyses above.⁶²

4.6 Conclusion

While empirical research has examined a variety of firm characteristics associated with group membership, extensive studies on the effect of group membership on a firm's tax avoidance behavior and its propensity to manage earnings for tax reasons have not been provided so far. This paper fills this void in the literature and finds that Belgian firms affiliated to a business group face lower effective tax burdens and have a less positive association between pre-tax income and tax burdens, compared to independent firms. This finding suggests that group firms apply efficient tax planning across group entities. As a rationalization for this finding, we postulate that group firms strategically manage firm-level earnings levels and allocate earning components across member firms depending on their marginal tax rate status. We provide evidence consistent with these hypotheses, in that (1) tax-paying group firms manage earnings significantly more downward (respectively: *upward*) than independent firms when they face positive (respectively: *zero*) marginal tax rates, and (2) (changes in) intra-group

⁶² Since one variable of interest, namely group dependency, remains constant over time in all multiple regression models of interest, we cannot rely on fixed effects panel regressions (see e.g. Baltagi (2001)). The Hausman test, however, indicates that in all regression specifications performed in our analyses, fixed effects models are potentially more appropriate than random effects models. One way to overcome this problem is running Hausman-Taylor panel regressions which allow for correlation between the firm-specific characteristics and (some of) the explanatory variables in the combination with a time-invariant exogenous variable. This estimation technique is similar to running an IV model in which the instruments are endogenously chosen and basically is a variant of a 2 stage least squared regression. For further details, we refer to Baltagi (2001). Generally, the results do not differ substantially in the panel data regressions compared to the OLS regression, providing sufficient confidence that the OLS results reported above are robust.

transactions are detected as important instruments to alter the reported profit level in function of a firm's tax status.

To our knowledge, this paper is the first to show that group firms apply earnings management more frequently in response to tax-incentives than independent firms. Hence, this evidence shows that when firms are less dependent on financial contracts because of strong business ties and internal capital market provisions, tax avoidance incentives outweigh the financial reporting incentives to report positively adjusted income. This paper is unique in its kind since it is one of the first to document that group firms capitalize on their business affiliations to manage earnings for tax reasons. Further, the findings are unique in that they show that group firms' intra-group transactions are, to some extent, related to the marginal tax rate status suggesting tax-motivated intra-group income allocation across group firms. All results are robust to alternative model specifications, variable definitions and earnings management measures.

Our findings have important implications for a multiple set of stakeholders. The evidence not only suggests that tax incentives bias the reported financial statements of group firms, leading to a misrepresentation for external users, but that this behavior also results in a foregone tax income for national authorities. Our evidence is able to verify concerns expressed by policy makers empirically that group firms flexibly alter their financial reporting for tax-minimizing reasons. Our findings have important policy implications since they show that business groups overcome rigidities in tax rules, i.e. the absence of fiscal consolidation, and act in concert to minimize their average tax burden. Finally, the findings also implicate that tax-motivated income shifts can expropriate the wealth of minority shareholders. Group level decisions to shift earnings across group entities for tax reasons, causes distortions in the representation of the firm-level underlying economic performance which, in turn, has effects on a minority shareholder's individual return on investment.

4.7 Appendices

4.7.1 Appendix 4.A: discretionary accruals regression model specifications

The total extent of earnings management in our sample and control firm is estimated by running multiple cross-sectional 2-digit sector peer regressions as suggested in Jones (1991), Dechow et al. (1995) and Dechow et al. (2003). The cross-sectional variant of the original Jones (1991) model, estimates the firm-level discretionary accruals by regressing total accruals on a firm's change in sales and the level of gross property, plant and equipment. Algebraically the Jones (1991) model (JM) goes as follows:

$$TotAcc_{it} = \alpha_0 + \beta(\Delta Sales)_{it} + \gamma(GPPE)_{it} + \varepsilon_{it} \quad (1)$$

Where $TotAcc$ = total accruals, measured by the balance sheet approach as $(\Delta inventory + \Delta debtors + \Delta other\ current\ assets) - (\Delta creditors + \Delta other\ current\ liabilities) - depreciation$, $\Delta Sales$ is the year-on-year change in sales and $GPPE$ is the firm-level of gross property, plant and equipment. The Modified Jones model, as first applied in Dechow et al. (1995), extends this regression by removing all change in receivables from change in sales levels. Dechow et al. (1995) motivate that not all receivables outstanding are nondiscretionary and suggest a correction for the total amount of receivables. This leads to the following Modified Jones model (MJM):

$$TotAcc_{it} = \alpha_0 + \beta(\Delta Sales - \Delta REC)_{it} + \gamma(GPPE)_{it} + \varepsilon_{it} \quad (2)$$

However, since above models explicitly assume that receivables are either fully nondiscretionary – as in (1) – or fully discretionary – as in (2) –, there is a need to control for a specific proportion of receivables that is discretionary. Hence, Dechow et al. (2003) suggest to estimate the expected change in a firm's receivables by regressing the change in receivables on the change in sales for all sector peers and to correct the accruals estimation with this factor (k). Algebraically,

$$\Delta REC_{it} = \alpha_0 + k(\Delta Sales)_{it} + v_{it} \quad (3)$$

Moreover, because accruals typically reverse over time, a substantial proportion of total accruals of the current period are captured by the lagged component of total accruals. We add this component to our third estimation model. This model, hereafter called the extended Jones model (EJM), goes as follows:

$$TotAcc_{it} = \alpha_0 + \beta((1+k)\Delta Sales - \Delta REC)_{it} + \gamma(GPPE)_{it} + \delta(Lag(TotAcc)_{it}) + \varepsilon_{it} \quad (3')$$

Hence in model (3'), total accruals should provide a more reliable estimate on the firm's real nondiscretionary accruals since they do not only take into account that changes in outstanding receivables are related to changes in a firm's sales but are also influenced by the lagged accruals component.

We compute a firm's discretionary accruals by running all three above-discussed estimation models on 2-digit sector peers for all years separately, being 1997-2001. In the reported analyses in Section 5, we only report regression results with discretionary accruals measured as in (2), although all measures have a very high correlation and yield similar results. There are sixty 2-digit sector codes ranging from 01 (agriculture) to 99 (extra-territorial organizations).⁶³ The exclusion of all financial institutions and utility sectors (respectively sector 65-67 and sector 40-41) limits this number to 55. Out of these 55 sector classifications, holding and independent firms are represented in 48 two-digit sectors, resulting in 240 (=48 x 5) sector-year regressions. The mean (median) number of available sector peers used in the regressions is 473 (299) and varies between 33 (Sector 18 in 1998: Textile Sector) and 2,887 (Sector 51 in 2000: Retail Sector). Detailed information on regression coefficients and estimates are available on request from the authors.

⁶³ Note that not each 2-digit sector is assigned. E.g. Sector 01 refers to Agriculture and Fishing and 02 refers to Forestry. Sector 03 and 04 are not assigned which makes Sector 05 (Minerals) the next in line. Between the codes 01 and 99, 40 two-digit sectors are non-assigned resulting in 60 different two-digit sector classification.

4.7.2 Appendix 4.B: *t* Statistics and interpretation of combined coefficient effects for regression of discretionary accruals on operating cash flow, MTR and group status

Regression model (2) is an extension of the model initiated in Dechow et al. (1998) and Ball and Shivakumar (2005) and models a firm's discretionary accruals level in a piece-wise linear regression framework on the level of operating cash flow, a firm's MTR status and group membership. For a detailed description of the model and sample properties, we refer to Section 4.3.4. We summarize the model below, formulate expected signs for combined regression coefficients and report calculated *t* statistics on combined coefficients. The model identifying positive OCF firm's proficiency to manage earnings downward in function of its MTR status and its group dependency, goes as follows:

$$DA_{it} = \alpha_0 + \beta_1 MTR_{it} + \beta_2 OCF_{it} + \beta_3 (MTR * OCF)_{it} + \beta_4 Group_{it} + \beta_5 (Group * MTR)_{it} + \beta_6 (Group * OCF)_{it} + \beta_7 (Group * MTR * OCF)_{it} + \sum_{j=8}^{10} \beta_j Control_{it} + \varepsilon_{it}$$

With DA_{it} = discretionary accruals measured by the proportion of unexpected accruals resulting from a Jones (1991) regression model and MTR_{it} = a dichotomous variable capturing a firm's marginal tax rate status. This variable is equal to one for firms with estimated positive marginal tax rates and zero otherwise. OCF_{it} is a firm's operating cash flow level, computed as earnings before extraordinary items less total accruals. Total accruals themselves are calculated as: $(\Delta Inventory + \Delta Debtors + \Delta Other Current Assets) - (\Delta Creditors + \Delta Other Current Liabilities) - Depreciation$. Discretionary and total accruals as well as cash flow from operations are deflated by lagged total assets. Control variables are a firm's size (Log(total assets)), leverage (total liabilities/total assets) and pre-tax income (pre-tax result/total assets). The table listed below summarizes the expected sign and interpretation of combined coefficients. *t* Statistics summarizing the significance of combined coefficients are computed as follows: $(\beta_i + \beta_j) / [Var(\beta_i) + Var(\beta_j) + 2Cov(\beta_i, \beta_j)]^{1/2}$ and significance levels are denoted by *** (p<0.01), ** (p<0.05) and * (p<0.10).

Sample	Action	(Combined) Coefficient	Value (t statistic)
Independent firms	Use of DAs to smooth OCF irrespective of the MTR status	$(\beta_2 + \beta_3) < 0$	-0.792*** (-43.74)
	DAs are more downward motivated if MTR status = 1	$(\beta_3) < 0$	0.009 (0.21)
Group firms	Use of DAs to smooth OCF irrespective of the MTR status	$(\beta_2 + \beta_3) + (\beta_6 + \beta_7) < 0$	-0.842*** (-16.20)
	DAs are more downward motivated if MTR status = 1	$(\beta_3 + \beta_7) < 0$	-0.426** (-1.67)
Group versus independent firms	Group firms use DAs significantly more to smooth OCF than independent firms, irrespective of the firm's MTR status	$(\beta_6 + \beta_7) < 0$	-0.050 (-0.93)
	DAs of group firms are significantly less downward motivated than DAs of independent firms if they face a zero MTR status	$(\beta_6) > 0$	0.386** (1.96)
	DAs of group firms are significantly more downward motivated than DAs of independent firms if they face a positive MTR status	$(\beta_7) < 0$	-0.436** (-2.14)

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4.9 Tables and figures

TABLE 4.1
Descriptive Statistics and Correlation Matrix for Effective Tax Rate Regression Variables *

Variable	Group Membership	N	Mean	Median	Minimum	Maximum	Decile 1	Decile 9	Stdev.
ETR	1	639	0.213	0.096	0.000	1.000	0.000	0.503	0.253
	0	7,332	0.286	0.356	0.000	1.000	0.000	0.558	0.246
Difference in mean (median)			-0.073***	-0.260***					
Total Assets (in 000 EUR)	1	639	11,314,767	10,875,850	124,998	5,986,993,954	1,126,984	146,913,609	6,876,007
	0	7,332	6,137,667	5,185,907	192,001	140,308,662	2,114,133	27,307,045	2,822,865
Difference in mean (median)			5,208,100***	5,689,993***					
Leverage	1	639	0.593	0.627	0.003	1.536	0.156	0.954	0.293
	0	7,332	0.704	0.765	0.057	1.193	0.315	0.986	0.246
Difference in mean (median)			-0.111***	-0.138***					
Capital Intensity	1	639	0.198	0.098	0.000	0.986	0.001	0.546	0.237
	0	7,332	0.265	0.173	0.000	0.998	0.009	0.793	0.276
Difference in mean (median)			-0.067***	-0.075***					
Pre-tax Income	1	639	0.048	0.032	-0.677	0.543	-0.050	0.211	0.139
	0	7,332	0.041	0.018	-0.178	0.394	-0.002	0.129	0.066
Difference in mean (median)			0.007*	0.016***					

Panel B: Correlation Matrix (Pearson above, Spearman below the Diagonal)

	Group	ETR	Log(TA)	Leverage	Pre-tax Income	Capital Intensity
Group	1.000					
ETR	-0.079 (<0.001)	1.000				
Log(TA)	0.102 (<0.001)	0.022 (0.053)	1.000			
Leverage	-0.114 (<0.001)	-0.103 (<0.001)	0.114 (<0.001)	1.000		
Pre-tax Income	0.044 (<0.001)	0.341 (<0.001)	-0.156 (<0.001)	-0.503 (<0.001)	1.000	
Capital Intensity	-0.087 (<0.001)	-0.226 (<0.001)	0.125 (<0.001)	-0.187 (<0.000)	-0.056 (<0.001)	1.000

* Panel A provides descriptive statistics on group and independent firm's Effective Tax Rates (ETR; measured as taxes paid divided by pre-tax income), natural logarithm of Total Assets (Log(TA)), Leverage (measured as total liabilities divided by total assets), Pre-tax income (measured as pre-tax income divided by total assets) and Capital Intensity (measured as gross property, plant and equipment as a proportion of total assets). Differences in mean (median) between holding group member firms and independent firms are displayed and *t*-tests, respectively Mann-Whitney U tests statistics are performed to determine the significance levels. Note that * denotes significance at the 10% level, ** significance at the 5% level and *** significance at the 1% level. Panel B provides Pearson and Spearman correlations between all variables of interest, with Pearson correlations displayed above the diagonal and Spearman correlations below the diagonal.

TABLE 4.2
Regression Results examining Determinants of Effective Tax Rates and Differences
between Group Member versus Independent Firms *

Dependent Variable: ETR	Regression (1)		Regression (2)		Regression (3)	
<i>Intercept_{i,t}</i>	0.244***	(9.52)	0.229***	(9.12)	0.218***	(8.67)
<i>Log(TA)_{i,t}</i>	0.006***	(2.43)	0.009***	(3.84)	0.010***	(4.00)
<i>Leverage_{i,t}</i>	-0.017	(-1.50)	-0.028**	(-2.36)	-0.022*	(-1.84)
<i>Capital Int._{i,t}</i>	-0.197***	(-15.81)	-0.221***	(-17.36)	-0.221***	(-17.34)
<i>PTI_{i,t}</i>	0.605***	(15.33)	0.592***	(15.41)	0.696***	(16.02)
<i>Group_{i,t}</i>			-0.089***	(-7.75)	-0.072***	(-6.04)
<i>(GroupxPTI)_{i,t}</i>					-0.358***	(-4.93)
Sector dummies	Included		Included		Included	
Year dummies	Included		Included		Included	
Adjusted R ²	0.137		0.145		0.147	
F-statistic	120.53		124.12		122.81	
Sample size	7,971		7,971		7,971	

* This table presents coefficients (*t*-statistics) of an OLS regression model that examines determinants of average tax burdens of sample and control firms (Regression (1)) and additional differential effects for group member firms (Regression (2) and (3)). The model is defined below in its full form, i.e. containing variables that control for the differential effects for group member firms, both in the intercept and the interaction effect with pre-tax profitability. The dependent variable, ETR, measures a firm's average tax burden and is equal to the ratio of effective taxes paid on pre-tax income. Independent variables are the natural logarithm of total assets (*SIZE*), the firm's leverage ratio measured as total liabilities/total assets (*LEVERAGE*), the proportion of gross property, plant and equipment on total assets (*CAPITAL INTENSITY*) and pre-tax income (*PTI*, measure for *PROFITABILITY*). *Group* controls for differential effects in ETR between group firms and independent firms; *Group*PTI* controls for potential differences in the relationship between pre-tax profitability and ETR across group firms and independent firms. Both year- and sector dummies are included in the model but not tabulated (*available upon request*). The total sample contains 7,971 firm-year observations for the period 1997-2001. *t*-statistics are White-corrected and significance levels are denoted by *** ($p < 0.01$), ** ($p < 0.05$) and * ($p < 0.10$).

$$\begin{aligned}
 \text{Model: } ETR = & \alpha_0 + \beta_1 SIZE_{it} + \beta_2 LEVERAGE_{it} + \beta_3 CAPINT_{it} + \beta_4 PTI_{it} + \beta_5 GROUP_{it} \\
 & + \beta_6 (GROUP * PTI)_{it} + \sum_{j=7}^{16} \beta_{jt} IND_{jt} + \sum_{k=17}^{20} \beta_{kt} YEAR_{kt} + \varepsilon_{it}
 \end{aligned}$$

TABLE 4.3
Distributional Characteristics of Variables of Interest Across Marginal Tax Rate Status and Group Membership *

Variable	MTR status	Group membership	Percentile					Mean	Skewn.
			1 st	10 th	median	90 th	99 th		
Discretionary Accruals	0	0	-0.282	-0.131	0.013	0.112	0.296	0.001	-0.305
		1	-0.309	-0.149	0.001	0.134	0.331	-0.006	0.310
	1	0	-0.326	-0.135	-0.007	0.098	0.253	-0.013	-0.156
		1	-0.463	-0.205	-0.010	0.138	0.386	-0.015	-0.168
OCF	0	0	0.001	0.013	0.061	0.189	0.351	0.085	0.234
		1	0.001	0.006	0.095	0.234	0.405	0.114	1.469
	1	0	0.002	0.018	0.097	0.252	0.432	0.119	1.304
		1	0.002	0.027	0.099	0.327	0.463	0.130	0.939
Leverage	0	0	0.144	0.397	0.812	0.991	1.155	0.759	-0.901
		1	0.008	0.178	0.670	0.977	1.207	0.629	-0.309
	1	0	0.085	0.275	0.701	0.959	0.998	0.652	-0.538
		1	0.019	0.111	0.561	0.868	0.980	0.524	-0.241
Log(TA)	0	0	6.175	7.417	8.392	10.302	11.674	8.597	0.599
		1	5.759	7.365	9.212	10.505	11.960	9.038	-0.154
	1	0	6.203	7.738	8.549	10.205	11.522	8.729	0.526
		1	5.093	7.027	9.519	12.112	15.317	9.586	0.436
PTI	0	0	-0.156	-0.064	-0.009	0.021	0.117	-0.015	0.631
		1	-0.477	-0.138	-0.004	0.071	0.237	-0.019	-1.703
	1	0	0.000	0.003	0.035	0.155	0.291	0.059	1.643
		1	-0.033	-0.023	0.026	0.201	0.435	0.065	1.787

* This table reports the 1st, 10th, 50th (median), 90th and 99th percentiles of the continuous regression variables across marginal tax rate and group affiliation status. MTR status is a dummy variable indicating 1 if the firm faces a positive marginal tax rate when earning one additional currency unit, and zero otherwise. Group membership status is a dummy variable, equal to one if the firm is owned by a listed Belgian holding firm (for a detailed description see Section 4) and zero otherwise. The extent of discretionary accruals is the measure for earnings management and is the amount of unexpected accruals, estimated by running a Jones (91) cross-sectional regression model on two-digit sector peers. OCF is the firm-specific level of operating cash flow and is computed as (Earnings before extra-ordinary Items) – Total Accruals, where the latter are defined as: (Δ Inventory + Δ Debtors + Δ Other Current Assets) – (Δ Creditors + Δ Other Current Liabilities) – Depreciation. Both discretionary accruals and OCF are deflated by lagged total assets. Leverage, Log(TA) and PTI (pre-tax income) are defined as above.

TABLE 4.4
Regression Results of Earnings Management Behavior Across MTR and Group
Membership Status (Positive OCF Firms only) *

Dependent Variable: Discretionary Accruals		Regression (4)		Regression (5)	
<i>Intercept</i> _{<i>i,t</i>}		0.084***	(7.51)	0.091***	(8.62)
<i>MTR</i> _{<i>i,t</i>}	(β_1)	-0.009	(-1.43)	-0.015***	(-3.40)
<i>OCF</i> _{<i>i,t</i>}	(β_2)	-0.725***	(-10.14)	-0.802***	(-18.82)
<i>MTRxOCF</i> _{<i>i,t</i>}	(β_3)	-0.074	(-1.02)	0.009	(0.21)
<i>Group</i> _{<i>i,t</i>}	(β_4)			-0.034*	(-1.69)
<i>GroupxMTR</i> _{<i>i,t</i>}	(β_5)			0.038*	(1.71)
(<i>GroupxOCF</i>) _{<i>i,t</i>}	(β_6)			0.386**	(1.96)
(<i>GroupxMTRxOCF</i>) _{<i>i,t</i>}	(β_7)			-0.436**	(-2.14)
<i>Log(TA)</i> _{<i>i,t</i>}	(β_8)	-0.002***	(-2.15)	-0.002**	(-2.16)
<i>Leverage</i> _{<i>i,t</i>}	(β_9)	-0.033***	(-7.21)	-0.033***	(-7.29)
<i>PTI</i> _{<i>i,t</i>}	(β_{10})	0.903***	(30.45)	0.903***	(38.43)
Adjusted R ²		0.476		0.517	
F-statistic		362.37		311.85	
Sample size		5,763		5,763	

* This table presents coefficients (*t*-statistics) of OLS regressions of discretionary accruals (*DAs*) on the firm's operating cash flow (*OCF*) level, differentiating for a firm's marginal tax rate (*MTR*) status (Regression (4)) and for a firm's *MTR* status and group membership (Regression (5)). The full model is defined below. Discretionary accruals is the measure for earnings management and is the amount of unexpected accruals, estimated by running a Jones (91) cross-sectional regression model on two-digit sector peers. *OCF* is the firm-specific level of operating cash flow and is computed as (Earnings before extra-ordinary Items) – Total Accruals, whereby the latter are defined as: (Δ Inventory + Δ Debtors + Δ Other Current Assets) – (Δ Creditors + Δ Other Current Liabilities) – Depreciation. Both discretionary accruals and *OCF* are deflated by lagged total assets. Control variables are the natural logarithm of total assets (*SIZE*), the firm's leverage ratio measured as total liabilities/total assets (*LEVERAGE*) and pre-tax income (*PTI*, controls for *PROFITABILITY*). Results are displayed for group and independent firm-level data over the period 1997-2001 for which *OCF* levels are positive, resulting in a reduced sample size of 5,673 firm-years. *t*-statistics are White-corrected and significance levels are denoted by *** ($p < 0.01$), ** ($p < 0.05$) and * ($p < 0.10$).

Model:

$$\begin{aligned} DA_{it} = & \alpha_0 + \beta_1 MTR + \beta_2 OCF + \beta_3 (MTR * OCF) + \beta_4 Group + \beta_5 (Group * MTR) \\ & + \beta_6 (Group * OCF)_{it} + \beta_7 (Group * MTR * OCF)_{it} + \beta_8 Log(TA)_{it} \\ & + \beta_9 Leverage_{it} + \beta_{10} PTI_{it} + \varepsilon_{it} \end{aligned}$$

TABLE 4.5
Regression Results of Pre-tax Income on Intra-group Accruals and MTR Status *

Dependent Variable: <i>PTI</i>	Regression (6)		Regression (7)		Regression (8)	
<i>Intercept_{i,t}</i>	0.088***	(2.98)	0.091***	(3.08)	0.093***	(3.08)
<i>MTR_{i,t}</i>	0.134***	(12.49)	0.134***	(12.51)	0.133***	(12.07)
<i>ΔIntragroup Accounts_{i,t}</i>	0.043***	(3.15)	0.097***	(3.72)		
<i>ΔIG Receivables_{i,t}</i>					0.103**	(2.08)
<i>ΔIG Payables_{i,t}</i>					-0.099***	(-2.92)
<i>MTRxΔIntragroup Accounts_{i,t}</i>			-0.073***	(-2.58)		
<i>MTRxΔIG Receivables_{i,t}</i>					-0.054	(-0.92)
<i>MTRxΔIG Payables_{i,t}</i>					0.086**	(2.47)
<i>Log(TA)_{i,t}</i>	-0.007***	(-2.88)	-0.008***	(-2.99)	-0.008***	(-3.00)
<i>Leverage_{i,t}</i>	-0.099***	(-5.15)	-0.098***	(-5.12)	-0.097***	(-5.19)
Adjusted R ²	0.296		0.303		0.308	
F-statistic	25.38		23.03		31.98	
Number of observations	639		639		639	

* This table presents coefficients (*t*-statistics) of OLS regressions of group firm's pre-tax income (PTI, measured as Pre-tax income/total assets) on changes in intra-group accounts (Regression (6)), changes in intra-group transactions, marginal tax rate status and interaction effects (Regression (7)). In Regression (8), changes in intra-group transaction accounts are treated with respect to their individual asset and liabilities components separately, to isolate changes in payables versus changes in receivables. Changes in intra-group accounts are calculated as the year-on-year change in intra-group receivables (Code 931) minus the year-on-year change in intra-group payables (Code 937), scaled by lagged total assets. Models are defined below. All *t*-statistics are White-corrected and significance levels are denoted by *** (*p*<0.01), ** (*p*<0.05) and * (*p*<0.10).

$$PTI = \alpha_0 + \beta_1(MTR)_{it} + \beta_2\Delta Intragroup\ Accounts_{it} + \beta_3(MTRx\Delta Intragroup\ Accounts)_{it} + \beta_4 Log(TA)_{it} + \beta_5 Leverage_{it} + \varepsilon_{it} \quad (1)$$

$$PTI = \alpha_0 + \beta_1(MTR)_{it} + \beta_2\Delta IG_RECS_{it} + \beta_3(\Delta IG_PAYABLES)_{it} + \beta_4 MTRx\Delta IGRECS_{it} + \beta_5(MTRx\Delta IGPAYABLES)_{it} + \beta_6 Log(TA)_{it} + \beta_7 Leverage_{it} + \varepsilon_{it} \quad (2)$$

CHAPTER 5: CONCLUSIONS, IMPLICATIONS AND AVENUES FOR FUTURE RESEARCH

CHAPTER 5: CONCLUSIONS, IMPLICATIONS AND AVENUES FOR FUTURE RESEARCH

5.1 Introduction

The studies presented in this dissertation are empirical analyses on the financial reporting quality of private firms in a Continental European context, namely Belgian. The common theme of these examinations is that they use divergence in ownership and corporate governance structures to investigate corporate financial reporting characteristics. Two studies explicitly focus on ownership and corporate governance structures in a private equity context and explore the associated impact on a portfolio firms' earnings quality and disclosure policy. A third study examines business groups to provide insight in corporate earnings management actions in response to tax incentives. Both study contexts are unique and allow, each in their own way, to study these phenomena in an innovative setting. The investigation of earnings quality characteristics in private firms is a rather new research area and various elements still remain uncovered. Therefore, the studies presented here substantially contribute to the developing literature on earnings quality in unlisted firms and offer valuable insights in the determinants of financial reporting behavior of unlisted firms. In this concluding section, I highlight the core findings with respect to both study contexts and draw some conclusions. Additionally, this chapter summarizes the key implications of the research and indicates some avenues for further research.

5.2 Private Equity and Financial Reporting Quality

The private equity financing process is a widely studied area of interest in the economic literature since it coincides with a change in ownership structure and typically is characterized by information asymmetries and agency problems (e.g. Gompers (1995), Kaplan and Strömberg (2002 and 2004), Wright and Robbie (1998)). The literature so far has provided evidence on how these problems are typically addressed through intensive screening, contract stipulations and monitoring activities. What has been surprisingly neglected in the literature is the role and characteristics of financial reporting quality in the private equity process. Information asymmetries and agency issues inherently call for a higher financial reporting discipline in private equity portfolio firms. Therefore, the research in this dissertation on private equity broaches this rather unexplored domain and addresses the interaction between

(the need for) intensified monitoring and corporate control and the associated impact on portfolio firms' financial reporting discipline.

Results on the entrepreneurial discretionary earnings management actions show that firms overstate earnings levels in the run-up to the private equity financing. This finding is interesting from different perspectives. It suggests that entrepreneurs overstate the firm's financial performance at the time of private equity application and might be evidence of an opportunistic entrepreneurial attempt to facilitate private equity investors' financing. However, since private equity investors are professional instances and scrutinize financial statements rigorously in a due diligence process, this earnings management is likely to be discerned in a later stage. Therefore, the observed pattern is more likely to be a reflection of the entrepreneurial confidence in the future of which the entrepreneur decides to add some information in the current earnings level. Alternatively, consistent with the managerial response behavior suggested by Shivakumar (2000), it might be an entrepreneurial response to anticipated investment behavior by the private equity investor. If entrepreneurs cannot credibly signal that their accounts are unaffected by earnings management, private equity investors are very likely to treat all firms as if they have overstated their earnings. Entrepreneurs might respond to this by overstating their earnings, at least to the extent which is expected by the private equity investors.

Further, with respect to the role of private equity investors' monitoring and control influence in the post-investment period, the evidence shows that private equity presence initiates higher financial reporting quality in portfolio firms. The increase in financial reporting quality is found both in tests of earnings quality and disclosure behavior and is robust to a number of sensitivity checks. These results are interesting for various parties and have important implications. First, it is evidence that the value adding role of PE investors goes beyond that of pure financial intermediaries and improves their financial reporting discipline. This complements results as in Hellmann and Puri (2002) who documented substantial professionalization effects of private equity presence on a number of company characteristics apart from its financial reporting quality. Hence, these findings are the first to show that private equity involvement has quantifiable effects on the financial reporting discipline of their portfolio firms.

These findings are important for a variety of economic agents like banks and other creditors, suppliers and customers, employees and even potential new investors. It shows that financial statements of private equity backed firms are more relevant and reliable in financial contracting issues than those of similar non-equity financed firms. This extends results on the

certification role of private equity investors beyond that which is typically detected at IPO periods (e.g. Booth and Smith (1986), Megginson and Weiss (1991)). By improving the quality of portfolio firm's financial reporting, private equity investors directly reduce information asymmetries towards third parties; a finding which substantiates their certifying capabilities. In line with Hellmann and Puri (2002) and Hand (2005) our results suggest that private equity investors substantially contribute to their portfolio firm's development and professionalization in the period before the firm is publicly listed.

These findings are also important from a policy perspective since it is shown that private equity investors fulfill a role in the professionalization of the financial reporting discipline in their portfolio firms, hereby indirectly stimulating a higher financial reporting quality on average. The stimulation of private equity investments in the economy is likely to coincide with a higher quality and more reliable financial reporting, on average. The current government actions that are taken worldwide are largely motivated by the contribution which private equity investors have on job creation, social cohesion and economic growth (OECD (2004)). The results presented here depict an additional and very important positive externality associated with private equity governance. It is an extra impulse to motivate active hybridization of private equity in the corporate landscape.

However, results of the current studies purely focus on the financial reporting discipline associated with private equity monitoring and intensified governance. One avenue for further research is to sort out additional positive externalities that are not covered by this type of research. The professionalization influence of private equity investors on various elements of their portfolio firms' business process and development are still largely unexplored and indicate the need for further explorations. Additionally, international research is recommended to corroborate the results for the Belgian context in other institutional contexts. Finally, it would be potentially interesting to analyze differences in financial reporting discipline across private equity investor origin, type and characteristics.

5.3 Business Groups and Earnings Management

Next to studies on earnings quality of unlisted firms in a private equity setting, this dissertation additionally utilizes the concept of business groups to meticulously examine a specific feature of financial reporting quality, namely the propensity of tax-motivated earnings management. Business groups are studied through the connection with listed Belgian

holding firms. Holding affiliations and business groups have previously been studied extensively on a variety of facets. Rationales for their corporate existence and dominance are found in agency and bankruptcy cost reduction, managerial efficiency and portfolio diversification (e.g. Banerjee et al. (1997), Becht et al. (2001), Daems (1978), Deloof (1998)). However, one of the mostly cited but unexplored rationale for holding firm existence is tax avoidance. This research is among the first to explore tax-motivated earnings management in business groups.

Results indicate that group firms experience lower effective tax rates and face a less positive association between pre-tax income and effective tax burdens, compared to independent firms. The results are robust to a variety of controls and multivariate test specifications. Moreover, it is found that group firms strategically manage earnings in response to their individual marginal tax rate status; whereas group firms facing positive marginal tax rates manage earnings downward, tax-exempt group firms compensate this behavior at the group level and manage earnings upward. Additionally, the results show preliminary evidence that intra-group transactions are important instruments to alter the firm's profit figure in function of its individual tax status. These results provide valuable new insights in the rationale of business groups and have important implications for a diversity of economic agents.

First, the findings suggest that group firms, by capitalizing on their business affiliations, pursue a tax-minimizing financial reporting strategy. This finding might be explained by the intrinsic characteristics of business groups. Group firms are found to rely heavily on internal capital markets for the financing of their business operations (Chan and Hong (2000), Deloof (1998), Khanna and Palepu (2000)), which substantially mitigates external financial contracting pressures to report high earnings levels. This, in turn, provides additional resilience to endeavor tax minimization in the individual firm's financial reporting. Independent firms, for which tax motivations are also playing, often have competing financial contracting incentives explaining their less pronounced tax-induced earnings management pattern. The results indicate tax avoidance as a key rationale for the existence of business groups.

An important implication of these results is that group firm's individual financial statements are tax-biased, leading to a substantial misrepresentation for external users. Therefore, banks and other creditors, suppliers, customers or labor unions can be substantially misled by the reported financial performance if they are not fully considering the group firm's tax status, its willingness and capabilities to manage earnings for tax motivations. It also implies that national authorities face a foregone tax income because group firms face very low effective

tax burdens, on average. In Belgium, where business group member firms are taxed at the individual company level and fiscal consolidation is not to be introduced before 2010, business groups seem to overcome rigidities in tax rules and act in concert to minimize their average tax burden. If national authorities consider fiscal consolidation in a later stage, they should be aware of these results who suggest that group firms already utilize their inherent flexibilities to by-pass the current lack of it. Introducing fiscal consolidation, therefore, is not expected to have serious budgetary consequences for national authorities.

Another implication of this finding is important for minority shareholders of firms that are ultimately controlled by holding firms. Tax-induced earnings management might result in lower effective tax burdens for group firms on average, but indirectly also implies that the economically reported profit is tax-biased. Consequently, both highly positive and highly negative economic profits of group members are averaged out, resulting in an artificial and inadequate representation of real economic performance. If the earnings management is not only driven at the firm entity level but, as results indicate, is also partly intra-group related, group affiliation leads to the expropriation of wealth for some shareholders at the detriment of that of others. A system of fiscal consolidation would not need this kind of firm-specific or intra-group earnings management activities and is potentially a better way to tax business groups as it does not confiscate minority shareholders.

There are some interesting opportunities for further research with respect to tax minimization actions within business groups. In line with research on US bank holding companies of Beatty and Harris (2001), one could investigate whether the extent of firm-specific earnings management is driven most by the individual firm's tax status, by the tax status of the holding group or by both. Further, identification of business group ties and political relationships could additionally provide further evidence on business group characteristics and the ensuing ability to avoid high taxes. In addition, international findings on holding member firms across countries could further corroborate these results for Belgian group firms. Finally, with the anticipated introduction of fiscal consolidation in 2010, it will be potentially interesting to investigate changes in group firms' financial reporting in response to this regulatory change.

5.4 References

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Curriculum Vitae

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"Knowledge speaks, but wisdom listens"

Jimi Hendrix (1942-1970)

